

Editorial Department.

IN preceding numbers of this JOURNAL we have repeatedly taken occasion to speak favorably and hopefully of the Association for the Protection of the Insane and the Prevention of Insanity as a timely and needed organization. We wish here to express our opinion as to the work which that association must accomplish if it is to fulfil the expectations of the friends of reform. That it will do good we do not doubt. There is no fear, as at present constituted, of its becoming a reactionary agency, like the Superintendents' Association. Its simple existence is a protest against the policy that has controlled that body. But it may act far below its possibilities and even be deservedly damned for its sins of omission, if, through the inaction of its members or wrong counsels, it should fail to do its whole duty. The work it was founded to accomplish is more than sufficient to absorb all its energies, and there should be no abatement in its activity as long as it is still unfinished. Its principal points for attack in the present systems and conditions are, in our opinion, as follows :

First, the association should make a vigorous movement on the present systems of practical irresponsibility of asylum authorities in most of the States of the Union. The Association of Superintendents has so long and persistently promulgated the notion that in its members is embodied all the wisdom and information worth having in this country on the subject of insanity, that the public has practically accepted it as a fact, and the result is, that there are no possibilities of despotism greater than those

This fundamental fact seems well established, and MM. Dastre and Morat have proved it in an incontestable manner ; the dilatation is direct, that is, there is no intervention of any reflex paralytic influence in these phenomena.

This much admitted, and active dilatation being possible neither anatomically nor physiologically, we see only one possible explanation ; it is dilatation by the autonomous movements of the vessels themselves. There are, then, no vaso-dilator nerves, properly so called, but there is an increased sanguine afflux on account of the increased peristaltic action of the vessels.

All observers who have watched the circulation through the microscope at the commencement of an inflammation, have observed alternate contractions and dilatations of the capillaries. On the other hand, we should especially remark that a healthy muscle not only contracts energetically, but is easily relaxed after contraction, while a muscle in an abnormal condition never relaxes completely, but remains always slightly contracted. However it may be in all the muscular tubes, we see perfectly well a dilatation following after contraction, and this dilatation is always more pronounced than that which exists in the condition of repose. This normal relaxation not only permits the arterial tension to dilate the vascular tube and permit a larger amount of blood to enter it, but it also makes it possible to utilize all the force of the heart, since it does not receive its impulse like the elastic tissues of the great trunks and cause retardation. It opposes no obstacle, renders necessary no expenditure of power ; the contraction directly following the relaxation is itself a reinforcing impulse for the propulsion of the blood. I am persuaded that no theory can explain as well as this one the physiological and especially the pathological facts.

MM. Dastre and Morat reply to M. Onimus in the *Gaz. des Hôpitaux*, No. 10, January 25. First, they claim to have established satisfactorily the fact of direct vascular dilatation of the bucco-labial region from irritation of the cervical sympathetic ; a fact admitted, indeed, by M. Onimus. Their interpretation of the fact only had been questioned by him. A vaso-dilator nerve is one, according to any reasonable definition, that, being excited, causes a direct vascular dilatation. There is, therefore, no question of interpretation about it ; it is merely a statement of a fact.

Vulpian and Claude Bernard have shown that there are for the

tongue and submaxillary gland two orders of nerves, anatomically distinct and following different tracks—the constrictors in the hypoglossal and sympathetic, the dilators in the lingual and chorda tympani. MM. Dastre and Morat claim that their experiments show that instead of its being necessary for these two orders to be separated from each other in different nerve-trunks belonging to separate morphological systems (cerebro-spinal and sympathetic), they may be united in the same trunk in the sympathetic. But this is not admitting that they cease to be distinct. The same excitation of the cervical sympathetic that causes simultaneous pallor of the tongue and reddening of the lip, distinguishes physiologically, so to speak, in this complex trunk, the special elements contained, and reveals their different actions—constrictive for the tongue and dilator for the lips. The cervical filaments for each special region always act in the same way, and alternately in both ways, as M. Onimus presumes.

Not only is it the case, as in the cervical sympathetic, that vaso-motor nerves of opposite functions may exist in the same general nerve-trunk for different regions, but it may contain both vaso-constrictors and vaso-dilators for the same regions. The excitation of such a nerve-trunk will give rise to a resultant action, which will be vaso-dilator or vaso-constrictor according as one or the other is predominant, and it is conceivable that there might be voluntarily either a constriction or a dilatation. But it is unreasonable to conclude that the component elements of such a mixed nerve possess alternately both kinds of activity. At least this is the opinion of MM. Dastre and Morat in reply to M. Onimus.

THE REFLEX OF SNELLEN.—At the session of the Soc. de Biologie, of January 29th (rep. in *Le Progrès Médical*), MM. Dastre and Morat reported further experiments on the sympathetic vaso-dilator nerves. The auriculo-cervical nerve is very easily reached in the dog, the rabbit and the goat, when we displace the external portion of the ear. Its section and excitation of its peripheral portion give rise to phenomenon that have been often studied. The excitation of its central portion gives rise to what is known as the reflex of Snellen. When the excitation is strong (Rouget) this phenomenon consists in a congestion of the corresponding ear, remarkable from its intensity and its unilaterality.

This vaso-dilatation is reflex, since the nerve excited is no longer in connection with the spinal cord. MM. Dastre and Morat have

discovered the route of this reflex, its centripetal route, its central track in the cord, and its centrifugal course. 1. The centripetal route, which conducts the excitation to the cervical cord, is formed by the second pair of spinal nerves which give out the auriculo-cervical. 2. Experiment demonstrates that the excitation follows in the cord a descending track, leaving it below the seventh cervical pair of nerves. Indeed, if we cut the cervical cord anywhere between the third and seventh pairs of nerves, the reflex is destroyed. If only hemisection is done, the reflex is abolished on the corresponding side. It is certain, therefore, that the excitation finds the nervous centre for the reflex vascular dilatation below the seventh cervical vertebra. 3. The excitation leaves the cord by way of the rami communicantes, which leave the last cervical pair to pass to the lower cervical and first thoracic ganglia. When these filaments are cut the reflex is abolished, and when the end attached to the ganglion is irritated it reappears.

These rami communicantes are, therefore, veritable vaso-dilator nerves for the ear, and the portion of the cervical cord which transmits to them the excitation contains the vaso-dilator centre for the ear.

In Snellen's experiment this centre is put in action by exciting the central end of the auriculo-cervical nerve. It may be put in action by all other excitations that reach it. Among these excitations, MM. Mathias Duval and Laborde have noticed those which, made on the trigeminus, are conducted directly by the roots of this nerve (ashy tubercle of Rolando) to the vaso-dilator centre described by MM. Dastre and Morat. Arrived at the first thoracic and lower cervical ganglion, these auricular vaso-dilator fibres terminate, or rather they continue their route in the cervical sympathetic, mixed with vaso-constrictor fibres known to exist there, and with these gain the vessels of the ear. In the first case the ganglia of the sympathetic chain will be, like the peripheral ganglia, centres of reaction or of interference of the two kinds of nerves, one upon the other.

However it may be, the vascular innervation of the ear is now known. The auricular dilators and constrictors have distinct origins in the cord ; there is a cervical vaso-dilator centre and a thoracic vaso-constrictor centre. Both classes of nerves have an equal title to the name sympathetic, which is only a new instance, in particular, of the general law formulated by MM. Dastre and Morat, viz. : "The great sympathetic is a mixed or double system containing vaso-dilator and vaso-constrictor nerves for all the organs."

THE EXCITABILITY OF THE MOTOR NERVES.—At the session of the Société de Biologie, December 18 (rep. in *Le Progrès Médical*), a communication by M. Maracacci was read. In studying the character of the reflex impulse produced by the excitation of a motor nerve in connection with the cord, M. Maracacci observed a new fact of interest as regards the question of the excitability of the motor nerves. The following is the experiment :

Opening the spinal canal of a frog, he cut all the roots, motor and sensory, on one side, reserving only one pair (motor root and sensory root). Placing the excitor on the motor root, it is irritated by an induction discharge, the minimum current that will produce a muscular contraction at the opening being found.

This having been done, the sensory root is then cut, and the irritation again made. Now the current that was before too feeble to produce any effect, produces an energetic contraction ; the minimum current of before becomes a powerful excitant in this new condition. The section of the sensory root apparently increases considerably the excitability of the motor root.

CEREBRAL THERMOMETRY.—Dr. R. W. Amidon notices, *N. Y. Med. Record*, Dec. 25th, the criticisms by Franck on the experiments in cerebral thermometry, and gives the results of further investigations on the subject by himself. He repeated Franck's experiments with greater precautions against error. Using the freshly prepared cranium, with scalp attached, brought up to a temperature of 95.5° F., he injected warm water directly against the inner surface of the cranium, the thermometer being applied to the shaven scalp outside. The results of these experiments, one of which, performed in the presence of Drs. Seguin, Putnam-Jacobi, A. B. Ball, and W. R. Birdsall, is given in detail, appears to demonstrate the following facts :

1. "That heat can be transmitted through the dead human cerebral envelopes in very appreciable quantities.
2. "That it is better transmitted when the envelopes are themselves warmed to more nearly simulate the living textures.
3. "That the rise of temperature commences externally in from four to eight minutes after the internal elevation, and attains its maximum in eight to twelve minutes, and that the fall of the two temperatures pursues the same course.
4. "The average of eighty temperatures taken shows a ratio of the internal temperatures to the external of 2:1.
"This ratio is much diminished when the media are warmed,

hence it is natural to suppose that in the warm, living state the ratio would be smaller still."

Dr. Amidon next takes up the exceptions that had been made to his experiments on cerebral thermometry, in connection with willed muscular movements, and gives details of an experiment performed by him in the presence of Drs. T. A. McBride and W. H. Halsted, which bore out his former statements. He says:

"In experiments properly performed I have found the invariable results :

1st. "That within the first two minutes a fall of temperature takes place on the same side of the head as the muscular movements.

2d. "That this fall continues during the succeeding four or five minutes, and may attain the amount of 1° F.

3d. "That at the end of the sixth or seventh minute it begins to rise, and at the eighth to the fifteenth minute will regain its old position, and even, perhaps, a slightly higher one.

4th. "That the temperature on the side of the head opposite the muscular movements sometimes slightly falls at first, but on or before the fifth or sixth minute begins to rise, and finally attains a temperature $\frac{1}{4}^{\circ}$ to 1° F. higher than it started with.

"These results are deduced from an immense number of observations, and must be explained as each one sees fit. I myself adduce no theory to explain them. One thing, however, I will say, and that is, if this rise of temperature is produced by cerebral activity (and the time of the commencement of the rise of temperature, after the movements commence, is identical with the time consumed by the heat of water to traverse the cerebral envelopes), the ultimate rise of temperature on the same side may be caused by diffuse radiation from the opposite side—the brain, as is well known, being a good conductor of heat.

"A final word as to the cautions to be exercised to make an experiment succeed :

1. "The subject should be strong.
2. "The movements *must* be vigorous.
3. "The hair must be thin or short.
4. "The temperature of the room low (56° to 60° F., 12.5° to 16° C.) and equable."

THE REFLEX CONNECTIONS BETWEEN THE LUNGS, HEART AND BLOOD-VESSELS.—Preliminary communication by Prof. Dr. Sommerbrodt, of Breslau, in the *Centralblatt f. d. Med. Wissenschaft*, 1880, No. 49.

1. Every increase of intrabronchial blood pressure in man (loud speech, singing, coughing, running, climbing, compressed air, etc.), causes irritation of the sensory nerve of the lungs.

2. Hence follows (*a*) depressive reflex action on the vaso-motors (diminution of vascular tonus, dilatation of the blood-channels, lowering of the blood pressure); (*b*) depressive reflex action on the inhibitory nerves of the heart (acceleration of the heart's action).

(*a*) and (*b*) increase the speed of the blood current, and with it also the secretion of urine.

3. The utility of this combination of reflexes is :

(*a*) Compensation of the hindrance to the circulation, the venous stasis, due to increased intrabronchial pressure.

(*b*) The securing of increased supply of oxygen and formative material to meet the more pronounced waste from action of the muscles (in singing, etc.), and probably also of the central organs (speaking).

The intrabronchial pressure is thus, through the intermediation of the sensory nerves of the lungs, the regulator of the rapidity of the circulation.

4. Irritation of the sensory nerves of the lungs may also, with the action of 2, (*a*) and (*b*), under certain conditions (probably increased irritability of the heart), in a reflex way alter the cardiac rhythm.

5. The retardation and alteration of the rhythm of the heart found with increased arterial blood pressure by Knoll in experiments on animals, can also be experimentally produced in healthy human beings.

The following are a few of the recently published articles on the anatomy and physiology of the nervous system :

HOLMGREN, Subjective Color-Sensations in the Color-blind. *Centralbl. f. d. Med. Wissenschaft*, Nos. 49 and 50, 1880. OTT, The Inhibition of Sensibility and Motion. *N. Y. Med. Journ.*, Jan. CLEVINGER, Central Anatomy Simplified. *Chicago Med. Journ. & Exam.*, Nov. COLE, Conjecture on Tactile Sensibility. *St. Louis Med. & Surg. Journ.*, Feb., 1881. SPITZKA, Further Notes on the Brain of the Iguana and other Sauropsida. *Science*, Feb. 19th. BUFALIM, On the Preparation of the Cylinder Axis of the Nerve-Fibre. *Lo Sperimentale*, Nov., 1880. SKENE, Studies of the Relations Existing between the Organs of Reproduction and the Brain and Nervous System in Women. *Ann. Anat.* &

Surg. Soc., Brooklyn, Nov. HACK TUKE, Hypnosis Redivivus. *Fourn. Ment. Sci.*, Jan. EDGREN, Contributions to the Knowledge of the Temperature Diseases Induced through the Influence of the Nervous System. *Ibid.* FISHER, Habitual Drunkenness. *Boston Med. & Surg. Fourn.*, Dec. 30th and Jan. 6th. SEGUIN, The Localization of Diseases in the Spinal Cord. *Ann. Anat. & Surg. Soc.*, Brooklyn, Dec. ELLIOTT, On Spinal Irritation, with Deformities of the Limbs and other Affections Resulting from it, with their Treatment. *Dublin Fourn. of Med. Sci.*, Nov. FLEMING, Antero-lateral Sclerosis. *Am. Fourn. Med. Sci.*, Jan. CROTHERS, The Clinical Study of Inebriety. *N.Y. Med. Rec.*, Jan. 15th. CLARK, Brain Lesions and Functional Results. *Can. Fourn. Med. Sci.*, Jan. REICHERT, Notes on a Case of Hysterical Arthritic Hyperæsthesia. *N.Y. Med. Rec.*, Feb. 12th. ROSEN-BACH, Remarks on the Theory of the Cheyne-Stokes Phenomenon. *Deutsche Med. Wochenschr.*, No. 4. JOHNSON, A Lecture on Backache and the Diagnosis of its Various Causes, with Hints on Treatment. *Brit. Med. Fourn.*, Feb. 12th. DAY, Clinical Lecture on Some Varieties of Nervous Headache. *Ibid.* HUGHES BENNETT, Clinical Lectures on Diseases of the Nervous System; Lecture IV, Chronic Hemiplegia Originating during the Puerperal State. *Ibid.*, Feb. 19th. CLARK, Brain Lesions and Functional Results. *Can. Fourn. Med. Sci.*, Jan. and Feb. FITZ, Diabetic Coma: its Relation to Acetonæmia and Fat-Embolism. *Boston Med. & Surg. Fourn.*, Feb. 10th. WILLIAMS, Notes on Changes Seen in the Eyes of Ten Cases of General Paralysis of the Insane. *Ibid.*, Jan. 13th. SOLIS COHEN, Extreme Opisthotonus in a Case of Hystero-Epilepsy. *Ibid.* ROCKWELL, A Case of Complete and Prolonged Loss of the Senses of both Taste and Smell; Rapid Recovery under the Influence of Galvanism. *Ibid.* ABBOTT and FITZ, A Case of Hydrophobia of Doubtful Origin. *Boston Med. & Surg. Fourn.*, Feb. 17th. BJERRUM, Hemianopsia for Colors. *Hospitals-Tidende*, Jan. 19th. SEELEGMÜLLER, On the Pathogenesis of Peripheral Convulsions. *St. Petersb. Med. Wochenschr.*, No. 2, Jan. 22d. PUTNAM, The Diagnosis of Locomotor Ataxia in the Early Stages. *Boston Med. & Surg. Fourn.*, Nos. 8 and 9. ECHEVERRIA, Alcoholic Epilepsy. *Fourn. Ment. Sci.*, Jan. MILLBERG, Observations on Color-Blindness. *Nordiskt. Med. Arkiv*, xii, 1880, No. 24. DE FONTENAY, Statistics of Congenital Daltonism in Denmark, *Ibid.*, No. 18. MEDIN, On Epidemic Cerebro-spinal Meningitis in Children. *Ibid.*, No. 16. WISING, On a Case of Chronic Mercurialism, Simulating Multiple

Sclerosis. *Ibid*, No. 17. BEARD, Nervous Diseases Connected with the Male Genital Function; VI. *N. Y. Med. Record*, Feb. 19th. DITZEL, Tetanus Puerperalis. *Hosp.-Tidende*, Jan. 5th. PREYER, On the Theory of Color-Blindness. *Centralbl. f. d. Med. Wissenschafts.*, No. 1. MOMMSEN, On the Alterations of Irritability of the Nerves from Various Agencies, especially Poisons. *Virchow's Archiv*, lxxxiii, 2 Heft, p. 243. BECK, A Case of Myelitis Lateralis Dextra Traumatica Ascendens (Hemiplegia Spinalis), Complicated with Osteomyelic Coxitis and Luxatio Spontanea, etc. *Ibid*, p. 301.

b.—PATHOLOGY OF THE NERVOUS SYSTEM AND MIND,
AND PATHOLOGICAL ANATOMY.

TROPHIC DISORDERS WITH CEREBRAL PARALYSIS.—Erb has stated, Zmsns. Hdbch., xii, ii, 2d Anfl., p. 420 that trophic disorders are rare with cerebral paralysis, and that, excepting with bulbar paralysis, atrophy almost never occurs. Förster of Dresden, *Deutsche Med. Wochenschr.*, Dec. 11th, takes issue with this statement. Within two years he had had six well-marked cases of cerebral hemiplegia in children, all six with characteristic implication of the facial and hypoglossal nerves and with retention of the faradic muscular irritability. Four of these six cases had been under observation for considerable periods after the onset of the paralysis : one seven months, one a year and ten months, and the other two, five, and six and a quarter years respectively. In all these cases he found a shortening of both limbs on the paralyzed side : in two cases of one, in one of one and a half, and in one of two centimetres. One child, examined three weeks after the attack, had, on the paralyzed side, $\frac{3}{4}$ centimetre less circumference around the calf, a difference that five months later had increased to one centimetre. Another, five weeks after the attack, showed a difference of one centimetre, and the three older cases exhibited from $\frac{3}{4}$ to 2 centimetres less circumference. In only one out of the six was no change noticeable.

These discrepancies in the circumference of limbs which at most were only of from sixteen to eighteen centimetres around, are sufficiently prominent. But there were other marked signs of atrophy ; flaccidity and doughy muscles and very obvious wasting of individual muscles, such as the deltoid, abductor pollicis, etc.

In two of the cases there was notable increase of the tendon (patellar reflex) on the paralyzed side. These facts would seem to indicate an implication of the anterior spinal cornua and of the lateral columns in certain regions in the diseased processes, and make it appear advisable to institute special researches into the condition of the cord in such cases whenever opportunity is afforded. But in ordinary poleomyelitis the atrophy of the muscles is not always attended with a diminution of the length of the limbs. Förster has recently examined cases of two years' standing and with notable muscular atrophy, in which there was not the least degree of shortening. It may be presumed, therefore, that, whether the centres governing longitudinal growth are situated in the anterior horns with those for the nutrition of the muscles, they are not always simultaneously or at least not proportionately affected with these latter in the cases mentioned.

GRAVE'S DISEASE.—Dr. Chas. Abadie, *L'Union Médicale*, Nov. 28, describes a case of imperfectly developed exophthalmic goitre in which the prominence of the right eye was the only marked special symptom apart from the general anaemia and constitutional disturbance. He offers, as a hypothesis to account for these undeveloped cases, the idea that the symptoms in this disease depend upon the portion of the cervical sympathetic especially involved. Thus, he thinks, pronounced disorder in any one of the cervical ganglia will produce the symptoms of Grave's disease in the part most directly connected with that ganglion ; if the superior cervical is mainly affected, then exophthalmus will be the most pronounced ; if the middle, thyroid enlargement will be the predominant symptom, and if the lower cervical ganglion is most diseased, then the cardiac innervation will suffer. In this way he seeks to account for the various partially developed syndromes of this affection.

COLOR-BLINDNESS IN DISEASES OF THE OPTIC NERVE.—Edward Nettleship, F.R.C.S. (London), read a paper on this subject at the forty-eighth annual meeting of the British Medical Association (reported in *Brit. Med. Jour.*, Nov. 13, 1880), held at Cambridge, August, 1880.

This paper contained a summary of observations in seventy-nine cases of uncomplicated disease of the optic nerves, including cases of tobacco-amblyopia and some cases of atrophy following neuritis. Cases of glaucoma and of retinitis pigmentosa, and

certain cases of congenital amblyopia with color-blindness and day-blindness, were not included. In fifty, the visual field was carefully measured on the perimeter; and the observations offered to the meeting bore chiefly on the various relations existing in these cases between the three factors: color-perception, acuteness of vision, and condition of the visual field. The following groups were then mentioned: 1. color-blindness of a high degree is always present when acuteness of sight is low, and the field of vision presents a high degree of sharply-defined but irregular contraction. This group includes the common cases of progressive atrophy often associated with early locomotor ataxy, but also frequently occurring without spinal symptoms. The author had never seen atrophy of the optic nerves in locomotor ataxy without color-blindness. 2. When the visual field shows a uniform contraction, moderate in degree, but not very sharply-defined, and perhaps only relative, though acuteness of sight may be very low (as low as $\frac{1}{20}$), color-perception is seldom much affected, and may be quite perfect. Such cases were considered rare. 3. If the alteration of the field take the form of a central defect (central relative scotoma), its circumference being of full size, though acuteness of sight may be as low as $\frac{1}{20}$, or even $\frac{1}{10}$, color-perception of *large objects* is but little, and often not at all, damaged; but partial or complete color-blindness for *small spots* of red and green exists; and such patients are, therefore, likely to mistake colored signal lights. Nearly all these cases of central amblyopia are caused by tobacco. 4. The visual field may show a high degree of sharply defined irregular contraction, but with perfect acuteness of vision. In such cases, (*a*) there may be marked color-blindness (two cases were mentioned); (*b*) there may not be the slightest defect for colors, of which condition also two cases in men were mentioned, and two others in women, lately recorded from Hirschberg's *clinique*, referred to. The difference between the subgroups (*a*) and (*b*) in regard to color-perception was most striking. 5. The field of vision may be perfect in size and free from any scotoma, with acuteness of vision as low as $\frac{1}{10}$, and (*a*) perfect color-perception (as in a woman whose case was mentioned); or (*b*) color-blindness, sometimes of considerable degree, may be present, two cases in young men being mentioned in confirmation.

MENTAL FAILURE FROM STRAIN.—The *Medical Press and Circular* states that Dr. Maclarens, superintendent of a prominent in-

sane asylum, has observed among the patients sent to that asylum a form of insanity which is not melancholia and which is not dementia, although it may, at first sight, be taken for one or the other of these, but which seems to be grave nervous exhaustion. It persistently appears in men who belong to the skilled artisan class. It must be remembered that the intelligent workman of the present day is a very different person from the labor of a former one, and uses, and probably overtaxes his brain nearly as much as professional or business men do. The attack to which Dr. Maclareen refers, especially affects the middle-aged, whose previous history is that they have been steady hard-working men who have saved a little money, and who have always been of an anxious turn of mind. In almost all instances they have been men of aspiring temperament, but without the intellectual ability which has enabled a few of their class to rise entirely above it. Yet they are not content to remain in their station and so they plod and toil, and become a prey to anxieties. Ultimately the prospect of obtaining a high position is lost, and then they concentrate their desires on accumulating money. Their whole time is occupied in laboring and planning to increase their store, and they are vexed by apprehensions lest their schemes should miscarry. The hours which should be devoted to sleep are given up to work or to miserly calculations, and then when an illness or a grief comes upon them, they break down miserably. They are reduced to a state of utter and complete prostration, mental and physical. The surface of the body is cold and pale, the pulse is feeble, and the mental condition is listless to an extraordinary degree. Power and force seem gone forever, and the stalwart, well set-up, acute-looking artisan of a short time ago, is reduced to a gray, bent, nerveless invalid.

In this utter loss of physical power is one of the marked distinctions between this variety of mental disease and melancholia. The cases of this kind which Dr. Maclareen has seen improved under treatment, but never recovered the tone of former days. *Med. and Surg. Reporter*, Feb. 5th.

THE PATHOLOGICAL ANATOMY OF HALLUCINATIONS.—Luys (*Gaz. des Hôpitaux*, 1880, No. 142) states that, as the result of many years of study of the brains of subjects of hallucinations and illusions, he has discovered certain interesting peculiarities in the cortex and optic thalami. Those in the former location are of

two kinds, localized hypertrophy and atrophic conditions more or less marked. The meninges are found somewhat congested, but the adhesions met with in general paralysis are lacking. In the cortex itself the characteristic lesion is a prominence of the paracentral lobule when viewed on the internal face of the hemisphere. In the normal brain the curve of the superior edge of the hemisphere is regular, but in these cases it becomes even gibbous in this isolated cortical region. On incision it is seen that the cerebral substance is increased and the folds more developed. On the convex face of the hemisphere it is seen that the two marginal convolutions are also swollen and more sinuous.

This peculiarity may appear on one or on both cerebral hemispheres, but it most frequently shows itself on only one. It is more liable, M. Luys thinks, to be double in old cases.

This peculiarity in this particular region in the brains of certain lunatics had been already noticed by Parchappe (*Traité de Folie*, p. 147), but had not been associated with these special symptoms during life.

The atrophic alterations claimed by Luys to be associated with hallucinations are most noticeable in the first frontal convolution, which is diminished in size and the fissures enlarged and patent. The second frontal also shares frequently in the change, and the Rolandic sulcus and the parieto-occipital are widened and gaping. Sometimes the calloso-marginal convolution is notably atrophied. Microscopic examination reveals the superior cortical layers grayish and gelatinous, and infiltrated with serum, the deeper ones often reddened and with strongly injected and abundant vessels. The nerve cells are scattered, and those that are seen are covered with yellowish granulations, or in a more or less advanced condition of degeneration.

The optic thalami in subjects of chronic hallucinations exhibit certain degenerations that indicate that marked circulatory disturbances have occurred. Sometimes these changes are minute hemorrhagic foci in various phases of absorption, showing themselves in minute brownish or wine-colored spots; or again, there are areolar cavities disseminated through the nuclei, constituting foci of softening, connected with atheromatous degeneration of the walls of the capillaries.

A special form of chronic alteration, sometimes met with in these cases, is sclerosis degeneration. In some cases the thalami are found pale and almost exsanguined, and on section the blood-vessels are seen gaping, as if there existed a veritable interstitial

sclerosis. Microscopic examination reveals sclerosis, which, starting in a morbid thickening of the ependyma, insinuates itself into the central mass in the form of perivascular trabeculae, and finishes by invading the different nuclei and crowding out the nervous elements. This interstitial sclerosis is accompanied by partial hyperæmias and a large proportion of amyloid corpuscles. Its tissue is formed by a very fine reticulum, very compact, and forming a homogeneous mass. This invading neoplasm produces all the usual disturbances of nutrition in the active nervous elements. The nerve cells become more or less scattered, so that in some parts they are met with only in clusters here and there. Those that do remain are, generally, granular, attenuated, and in various stages of degeneration.

In the acute forms of the hallucinatory process, and in cases that succumb during the period of excitation, we find a very intense vascularization in the central portions of the nuclei, and particularly in the gray substance of the third ventricle. Occasionally in the external regions of the optic thalami, where the fibres of the radiant crown of Reil are lost in the substance of the ganglion, the nerve cells are found notably increased in volume, and, consequently, apparently in a condition of functional super-activity.

In a certain number of hypochondriacs who have had during life either illusions or hallucinations of the visceral sensibility, M. Luys has observed that the networks of the central gray substance, which represent the localities of transmissions of impressions irradiated from the visceral periphery, were the seat of patches of hyperæmia, of diffuse reddened spots, which indicate the persistent traces of foci of hyperæmia, neatly localized. In these cases the walls of the third ventricle were more or less rose-tinted and exhibited scattered, discrete, vascular striations, and here and there patches of very intense hyperæmia.

In the above pathological findings we have, as M. Luys points out, evidences of chronic hyperæmia; traces of old congestions in the central gray matter of the optic thalami and the third ventricle; and also similar traces of hyperæmia with concomitant degenerations in various portions of the cortex. These two centres of cerebral activity are found associated in their morbid conditions as in their functions. In the physiological conditions it is the cells of the nuclei of the optic thalami that transmit to the various cortical regions the impressions that pass by their networks. In pathological conditions the same cellular elements enter *motu proprio* into action, under the influence of local excitation, of per-

sistence of certain vibrations, and of special circulatory troubles, and transmit to the cortex incitations created in themselves and having no connection whatever with the external world. These fictitious incitations are then dispersed over the receptive tracts of the cortex, and produce in the sensorium their special sensorial disorders and appropriate emotional states. Hence the various concepts of the subjects of hallucinations and their obstinate abnormal emotive conditions. The hallucinatory stimulus is always in its beginning sensorial in its nature according to the special set of cells in which it takes rise, whether auditory, visual, gustatory, etc. But like all similar normal stimulations destined to lose themselves in the sensorium, it is natural for this to diffuse and implant itself there, and in the centre of psychic activity it gradually loses its primary sensorial character and takes on a different form of existence, losing all apparent traces of its origin. What was first a simple morbid excitation of the sensory cells in the thalamus, is, according to this theory of M. Luys, transmitted to the cortex, where it elaborates itself into complete psychic conceptions.

The unilateral character of the cortical changes observed is noteworthy, and may possibly help to explain, M. Luys thinks, certain unilateral hallucinations and the co-existence of hallucinations with perfect sanity.

As to the etiology of hallucinations it will be readily seen from the above that, according to M. Luys' views, lively impressions which, made upon the senses, leave their impress, may be revived through morbid irritations of the portions of the brain involved, by anything, for example, that can disturb sufficiently their circulation, such as cerebral congestion from any cause, certain drugs, etc.

THE RELATION OF THE OVARIES TO THE BRAIN AND NERVOUS SYSTEM, is the subject of a paper read before the New York Academy of Medicine, December 16th, by Dr. Alex. J. C. Skene, and printed in full in the *American Journal of Obstetrics*, for January. After speaking of the general functional connections of different organs and their influence upon each other in health and disease, he discussed the ovaries in their relations to the other sexual organs. Everything pointed to the conclusion that they were paramount in reproduction and in the maintenance of the relationship between the general and the sexual systems of women. He accepted, without qualification, the state-

ment of Virchow and others that the ovaries give to woman all her characteristics of body and mind.

Then referring to the reciprocal influence of the nervous system and the reproductive functions, attention was directed to the fact that the sexual organs, while dependent on the general nutritive system for support, reacted again upon the organism as well as were affected by its conditions. From a somewhat extended consideration of the subject he was convinced that a great many affections of the brain and nervous system were due to disease of the ovaries. Their imperfect development not only modified the physical peculiarities of woman but also retarded the development of the higher nerve centres. A large part of the brain and nerve power of woman is devoted to reproduction, and when a woman is deprived of her sexual organs, the nutritive system might attain a normal development but the nervous system does not. There is usually mental weakness and often mental disorder among those whose ovaries are imperfectly developed. Twelve out of sixteen young women under his observation in an insane asylum, had imperfectly developed sexual organs. Some of them had never menstruated and others only imperfectly, and the history of these cases led him to think that defective development of the ovaries is an important factor in the production of insanity. At any event, there was enough in them suggesting this to invite further investigation to settle the question as to the relations between the ovaries to insanity and other nervous disorders occurring at puberty.

Next speaking of the effects of derangements of menstruation on the nervous system, Dr. S. holds that, in estimating these effects, the relative power of the different sexual organs has not been adequately considered. In the forms of dysmenorrhœa connected with ovarian derangements, he thinks the nervous system is much more disturbed, as a rule, in proportion to the local pain, than in those due to uterine lesions of flexion or displacement. The ovaries also act directly on the uterus, and we find menstrual derangements with perfectly normal conditions, except evidence of imperfect ovarian development or ovarian disease. When such patients suffer from nervous affections it is common to hear it said that they are due to the menstrual disorder, while in reality the point of departure from health is in the ovaries.

Degenerations of the ovaries, including neoplasms, do not seem to be attended with nervous derangement, beyond such as is due to the mechanical disturbance by tumors, etc.

He believes that inflammatory affections and displacements of the ovaries are more likely to cause serious remote effects, than disease of any other pelvic organs. Indigestion, spinal irritation, neuralgias, headaches, insanity, etc., attributed to uterine disease, can often, by careful search, be referred to some accompanying trouble with the ovaries. The conclusion reached by him, from years of observation and experience, is that while uterine disorder does often disturb the nervous system, it does so to a far less extent than disease of the ovaries. He reviews a complication of symptoms connected with simple ovarian tenderness, and practically nothing more, which may be attributed or not to inflammation, according to the view accepted by the author. These symptoms comprise considerable systemic disturbance, and sometimes great mental irritation and hysterical manifestations. Prolapsus of the ovaries, from whatever cause, also produces serious nervous disturbance, and he attributes to the presence of this complication the much greater general disorder observed in some cases of laceration of the cervix than in others. The nervous disorders observed with some cases of pelvic peritonitis, are also attributed to involvement of the ovaries in the morbid process, and in two cases of mania with uterine cancer, that came under his observation, he was also led to suppose that the ovaries were the disturbing elements. Dr. Skene agrees with Peaslee, who held that hysteria was connected with some condition of the ovaries rather than with uterine disease, and the recent developments by Charcot and others, in regard to the condition known as hystero-epilepsy, seem to favor this view.

The diagnosis of ovarian disease naturally presents some difficulties, the nature of many of these affections and their clinical history being as yet imperfectly understood. This is less the case with ovaritis and displacement, in regard to which he referred to Dr. Munde's paper in the fourth volume of the gynecological transactions. Menstrual derangements and the graver conditions of nymphomania and epilepsy are much more difficult for diagnosis, and the varied results obtained by Battey and others from removal of the ovaries, show clearly how uncertain even the best authorities may be in this respect. The exact relations, causative or secondary, of the ovarian trouble at the time must be carefully searched out. The products of pelvic inflammation may cause reflex irritation, and the ovaries be only the secondary sufferers rather than the primal cause. A case related by Battey in which he was only able to break up old adhesions instead of removing

the ovaries, is in point, since relief was obtained by merely this operation.

The treatment of ovario-neuroses is considered very briefly by the author. Both the nervous system and the sexual organs should be treated, not one to the exclusion of the other. In amenorrhœa, or irregular or scanty menstruation, local stimulants and especially electricity are useful. Marriage is generally beneficial in irritable and congested conditions of the ovaries, but is disastrous in inflammatory affections and prolapsus. In this latter condition, something can be done in the way of mechanical relief by pessaries and postural treatment; local sedatives and counter-irritation are also sometimes beneficial. The bromides are sometimes of the greatest value in obscure ovarian disease, and Dr. Skene prefers, as least likely to disagree with the stomach, the bromide of sodium, and gives large and frequently repeated doses till its characteristic effect is produced. Conium may be used in the same way. It is not advisable to make prolonged use of these drugs, at least not in large doses, and they should be combined with tonic treatment. The state of the bowels ought to be carefully looked after, as constipation aggravates the suffering. Opium, chloral, and alcohol often give relief, but their use should be limited and carefully watched, as these patients readily acquire a dependence on such agents.

The paper concludes with an account of five cases illustrating the ideas contained in the paper.

LOCAL SYMMETRICAL ASPHYXIA OF THE EXTREMITIES.—In the *Gaz. des Hôpitaux*, No. 13, Feb. 1, M. Hardy gives an account of a case now in the Hospital La Charité at Paris, of an affection rather rare in its advanced form here described, but which in its earlier and middle stages is not altogether unfrequent. It was that of a young man who, after having been exposed to a sudden change from a high temperature to cold, was taken with paralysis of both hands; sensation of all kinds being completely lost, and motion to a very large extent, and completely as regards the hands. There was also a slight choreic movement of the eyelids, and a bluing of vision. This was the second time the patient had been thus attacked, the former attack having lasted six months. M. Hardy gives to the disorder the name of local symmetrical asphyxia of the extremities, and considers it only a degree of the disorder described by M. Maurice Raymond under the name of symmetrical gangrene of the extremities, a condition

only very rarely met with in its full development. The much more frequently observed "*digiti mortui*" is a still milder and more temporary phase of the same complaint. The following are M. Hardy's general remarks on the disorder :

"It affects especially young persons, from fifteen to thirty years old ; both sexes are liable to it, but females appear to be, according to the observations, more predisposed to it than males. The immediate cause is exposure to cold. Unfortunately this cause is not proven, for the first attack of our present patient occurred in the month of July.

"The disease exhibits three different periods or degrees of development. The first is characterized by numbness or pallor of one or more fingers or of the whole hand. This is what is called 'dead fingers,' these members appearing white as if bloodless, the patient declaring that sensation is lost. This period has been called by M. Raymond 'local syncope.' I do not like this term 'syncope,' which indicates properly an arrest of the cardiac circulation, and much prefer that of 'local anaemia,' which seems to me to better express the actual conditions.

"The disorder may stop at this point, the phenomenon being, from time to time, reproduced, lasting a few hours or days, and the members then recovering their normal appearance and condition.

"The second period or degree is characterized by the local asphyxia of the extremities described in the present case, a lesion constantly symmetrical, occupying either the feet or the hands, and usually both at the same time. The symptoms are numbness and coldness of the tissues, so that the temperature is lowered in the parts involved to 21° , 20° , or even 19° C. ($=70^{\circ}$, 68° , 66.5° F.). There is also blueness, violaceous or cyanosed coloration, disappearing under pressure to slowly return, and more or less complete anaesthesia, that is, diminution or abolition of the tactile sensibility, of that to pain and to temperature. Finally, in almost all cases the patients experience spontaneous lancinating pains, like that of a severe burn, so severe at times as to prevent sleep or rest and to call forth loud cries.

* * * * *

"The third period is that which really deserves the name given to the disease by M. Raymond, viz., symmetrical gangrene of the extremities. After generally a rather lengthy period, there are found on the affected parts phlyctenulae containing dark-colored, sometimes even bloody serum, which breaks after a while, leaving

an ulceration that gradually dries up, and gradually other phlyctenulæ appear and act in the same way. The termination may occur in one of two ways: either the fingers become more and more tapering, the skin clings to the subjacent tissues, and there is a veritable sclerodermy with alteration of the tactile sense, or the disorder terminates in a genuine gangrene, dry, black, with atrophy of the integuments, with all the characters of senile gangrene, suppuration, sloughing of black eschars and mortified portions, and the patient recovers with mutilation.

"The recovery, whatever the form of the disease, is invariable, after a varying period, generally protracted.

"In our patient we have the second stage of the disease, with some variations from the tableau described by M. Raymond. Thus, on the one hand, there are none of the spontaneous pains mentioned by that author, and, on the other, there is a muscular paralysis that has not been heretofore observed, or which, at least, has not extended further than slight benumbing. Finally, our patient is now a second time affected. Relapses have been observed before in this affection by my colleague at La Charité, with this peculiarity, that they generally are each time worse than the preceding attack.

"The treatment is indicated by the nature of the disease, which is of nervous origin. Thus, long applications of the constant current, irritant frictions with camphorated alcohol, tincture of nux vomica or cantharides, may be usefully employed; likewise sulphur baths.

"This local symmetrical asphyxia, or symmetrical gangrene of the extremities, as we may choose to call it, is, as we have seen, a *bizarre* affection, offering similarities to sclerodermy and to the anaesthesia of lepra. There is an alteration of the functions of the capillary vessels, characterized by gorging of the veinules with venous blood, and resulting in a sort of paralysis of the vaso-motor nerves. There certainly exists some disorder of the central nervous system, of the spinal cord in the vicinity of the medulla, and I base this statement on the constant symmetry manifested by the phenomena, and on the paralysis of the radial and the muscles it supplies, as much in the right hand as in the left. But what is this lesion? This question can only be answered by further observations, when we can have the light afforded by an autopsy."

OCULAR SYMPTOMS IN GENERAL DISEASES.—There are few general affections that do not more or less involve the organ of

vision, and the ocular phenomena to which they give rise in certain cases form a valuable element for the diagnosis. For this reason Dr. Gorecki has endeavored to bring together in review the principal affections of which the appearance of the eye may give rise to a suspicion, or confirm the existence.

Blepharoptosis or droop of the superior eyelid indicates a complete or incomplete paralysis of the third pair. The lids on both sides, in a young female especially, cause a suspicion of hysteria.

Lagophthalmus, or inability to completely close the palpebral opening, is a sign of idiopathic facial hemiplegia, or is symptomatic of a cerebral affection.

Strabismus occurring suddenly and accompanied with diplopia is generally the result of a cerebral affection.

Xanthelasma of the lids appears under the influence of certain alterations of the liver.

Subconjunctival ecchymoses are frequent in whooping-cough, and may sometimes, in the beginning, serve to clear up a dubious diagnosis.

Redness of the conjunctiva, tears, and photophobia, and sometimes even a little catarrhal secretion, indicate in infants the imminence of an eruptive fever, notably measles. Tears are an important prognostic sign; good if, in crying, they appear, and bad if their secretion is suppressed.

Sclerotomy or episcleritis is, nine times out of ten, a symptom of gout, like tophus of the ear.

Spots on the cornea are often indicative of a strumous diathesis.

Dilatation of the pupil, or mydriasis, indicates either excessive fatigue, or the existence of intestinal worms, or meningitis in its second stage, or a veritable amaurosis.

This dilatation is frequently connected with atrophy of the optic nerve. It is also observed during the epileptic attack, in the period of resolution from chloroformization, after intoxication from belladonna, datura, etc. Unequal dilatation of the two pupils is a sign of the beginning of general paralysis.

Contraction of the pupil, on the other hand, or myosis, is an early sign of tabes dorsalis. It is met with also at the commencement of meningitis, and in poisoning by opium or chloral in its early stages.

Deformity of the pupil, especially after instillations of atropine, indicates an old iritis, which, in nine cases out of ten, is of syphilitic origin, when not due to disease of neighboring organs.

Cataract, in persons still young (forty to fifty years), is frequently of diabetic origin, and of the soft variety.

Exophthalmus is indicative of exophthalmic goitre.

Finally, the ophthalmoscope reveals to us the so-called albuminuric retinitis in Bright's disease, in simple polyuria, and sometimes in pregnant females. Retinal hemorrhages, oedema of the retina, and embolism of the central artery, are met with in organic cardiac disease. Optic neuritis and perineuritis, and papillary atrophy are symptomatic of syphilis and of tumor near the cerebellum and corpora quadrigemina. Finally, tubercles of the choroid almost always accompany tubercular meningitis, and are a valuable element of diagnosis between that affection and typhoid fever.

EYE SYMPTOMS IN LOCOMOTOR ATAXY.—Dr. J. Hughlings Jackson read a paper before the Ophthalmological Society, London, Dec. 9, 1880 (*Lancet*, Dec. 18, 1880), in which three well-marked non-ocular tabetic symptoms were considered, in connection with certain ocular symptoms. Twenty-five cases, in different stages, furnished the materials for the communication. Of these there were twelve of optic atrophy. In two there were also ocular paralyses, and in one a history of it; in nine there was Westphal's symptom. In one of the three, without this symptom, there had been no pains; gait was slightly ataxic. In the second there had been double vision ten years ago; there is now paresis of the left third nerve; this patient had pains, but his gait was normal. The third case was one of atrophy of one disk, with limitation of the field outward and downward; this patient saw green as gray and red as reddish brown; he had pains, but his gait was good.

In one case, in which there was paralysis of those parts supplied by oculo-motor nerve trunks, it was noticed that the patient had no positive symptom except Westphal's (tendon reflex). This patient's pupils acted well to light and during accommodation; he had no pains of any sort anywhere. In one case, with normal pupils and Westphal's symptom, there had been paralysis of the third nerve. In one case of inactive pupils, with Westphal's symptom, there had been temporary double vision. In another, with inactive pupils and Westphal's symptom, paralysis of one sixth nerve. That condition of the pupil, observed by Hempel, Vincent, Erb, Hutchinson, and others, called the Argyll-Robertson pupil, is a double condition, negative and positive, and in this way

resembles the so-called disorder of coördination of locomotor movements. This symptom is not peculiar to tabes; it may be found in general paresis of alienists—at least, reflex pupillary immobility. Erb's diagram was exhibited to the society, which gave that physician's view of the central conditions corresponding to the double pupillary condition, and the following case was cited, which was considered a very rare one: A woman, aged twenty-six years, had sought advice, simply because her right pupil was larger than the left. It had been so for three years. The right pupil was dilated, and absolutely motionless to light, and also during accommodation. Yet her ciliary accommodation on this side was perfect. She could read No. 1 Jaeger from fourteen inches up to five, or by effort to four. The field was perfect. The fundus was normal, except that the veins were large, and convoluted at the disk, probably physiological; the media were clear. Her sight with this eye was perfect. The pupil of the left eye was most active, and of normal size; the left disk was slightly paler than the right; the veins as on the right; macula normal; double slight limitation of nasal part of the field. She could read Jaeger No. 2 with the left eye, but the centre syllable of a long word seemed blurred. She seemed to be in perfect health, except for the ocular abnormalities mentioned. In testing her knees not the smallest trace of the knee phenomenon could be found.

There were no other symptoms of tabes. Erb has found the pupillary condition in patients who had no other nervous symptoms, as well as in nervous affections which could not be classed as tabes or as general paresis. Again, it is not said that the action of light may not be present in very well-marked cases of tabes. Pagenstecher has recorded a case verifying this fact, and it has also been observed by Laidlaw Purves.

Twenty years ago, Dr. Jackson had observed that many men who had "white atrophy" of the optic disks, had also lightning pains in the legs; and later, on making a distinction as to the kind of atrophy, he concluded that the pains were a symptomatic link between "uncomplicated amaurosis" and locomotor ataxy. This atrophy is now more particularly described as gray degeneration, and is supposed by Charcot and others to be parenchymatous. The peculiar limitation of the field of vision in cases of the atrophy in tabes is significant when we consider that the developed disease is in great part one of the locomotor system. The limitation would seem to correspond roughly to certain ocular de-

viations from cerebellar disease, in the way that hemiopia does to lateral deviation of the eyes from cerebral disease. In all cases of optic atrophy we should enquire for the pains, and test the knees, whether the gait be abnormal or not. The pains are often bridging symptoms between so-called uncomplicated amaurosis and tabes. Charcot says that, as far back as 1868, he pointed out that the great majority of women admitted into La Salpêtrière for amaurosis have, sooner or later, manifestations of tabes. He mentions one case in which the amaurosis preceded the pains ten years. Gowers has seen a case of tabes, in which optic atrophy preceded other ataxic symptoms twenty years. *N. Y. Medical Record*, Feb. 12.

THE INCREASE OF FIBRINE OF THE BLOOD IN PERICEREBRITIS.

—Dr. Daniel Bonnet, Physician-in-Chief of the asylum at Evreux, France, publishes, *Ann. Méd. Psych.*, January, 1881, the results of his investigations in regard to the fibrine of the blood in general paralysis. The fibrine increases, as is well known, in acute inflammations, and decreases in pyrexias; its normal average in health is .022 to .023 per cent. He commenced the investigation when an interne under Calmeil at Charenton, but had not been able to continue it steadily. The method employed was that of Andral and Gavarret. The fibrine, extracted from the clot, washed with care and desiccated, was then weighed; the fatty matter still contained naturally increases the weight. In six cases of cerebral hemorrhage he found, like Andral and Gavarret, a decrease of fibrine, it ranging from only .017 to .0214 per cent. In two cases of delirium tremens it was .0145 and .016, and in three cases of acute mania it was .0265, .03, and .0314.

In 30 cases of general paralysis the amount of fibrine varied between .013 and .059 per cent., being in relation with the intensity of the inflammation. The minima .013 and .0186 were met with in two cases of general paralysis of the dement type; slow in progress; and the blood was taken at the close of the second period on account of slight and temporary symptoms of cerebral congestion.

In 24 cases the weight of the fibrine varied from .02 to .0332 per cent., the average being .026. Four cases, in which it exceeded .04 per cent., are related in more or less detail. The conclusions of the memoir are as follows:

General paralysis, like every other chronic inflammation, does not produce an increase of fibrine in the blood when it takes a

slow and regular course. The quantity may even be diminished in some cases. An increase occurs when the phlegmasic phenomena become very intense, exceeding the ordinary acute stage. The percentage by weight of fibrine may then attain the figure of .059.

FOLIE À DEUX.—M. Marandon de Montezel, *Ann. Méd. Psych.*, January, 1881, discusses the subject of folie à deux, noticing the previous memoirs of MM. Lasègue and Falret, and Emanuel Regis. He recognizes the forms described by these authors, and adds a third based on the contagion of insanity in predisposed cases. He narrates histories of four cases illustrating these forms, and concludes as follows :

The principal ideas on which this memoir is based may be summed up in the following conclusions :

I. *Folie à deux* include three perfectly distinct orders of cases:

1. *Folie imposée*, in which an insane person imposes his insane conceptions upon another, more feeble morally and intellectually than himself, under certain conditions already developed in the paper of MM. Lasègue and Falret.

2. *Folie simultanée*, in which two hereditarily predisposed individuals contract simultaneously the same type of insanity, under certain conditions formulated by M. Em. Regis.

3. *Folie communiquée*, in which an insane person communicates his hallucinations and delusions to another person hereditarily disposed to insanity.

II. It seems necessary for three indispensable conditions to simultaneously combine to produce the *folie communiquée* :

1. A well marked hereditary predisposition in the recipient or passive party to whom the disorder is communicated.

2. In every case as intimate an association as possible between the two persons who will share the insanity.

3. Incessant action on the part of the insane person upon the mentally-sound person to cause him to adopt the hallucinations and delusions of the former.

III. In a medico-legal point of view the passive individual in the *folie imposée* is more or less weak-minded or imbecile ; and, even when he coöperates in the insane acts of the other active party, he need not be considered as an insane person in the strict sense of the term. On the other hand, in the *folie simultanée* and the *folie communiquée*, both parties must be considered insane.

IV. In a medico-legal point of view, in the *folie imposée*, the

appearance of insanity is a relative matter, and the expert, in order to draw a conclusion in regard to it, should study to inform himself in respect to the previous psychic condition of the passive receiving individual.

V. *Folie simultanée* and *folie communiquée* are only two particular instances of the general influence of surroundings on the forms taken on by mental alienation.

VI. It is also by the general influence of the environment that we have to explain the fact that all the cases of *folie à deux* are delusions of persecutions ; it is the type of the nineteenth century.

This last proposition needs the explanation that it applies more directly to the *folie simultanée*, in which Regis made the observation that all the cases were of this character. We see no reason why it should necessarily, for any one of the types described, be exclusively the case, and doubt the generalization.

NERVOUS PHENOMENA OF DYSPEPSIA.—At the session of the Soc. de Biologie, Nov. 13th (rep. in *Gaz. des Hôpitaux*), M. Leven described the nervous symptoms developed in dyspepsia, disorders of sensibility and motility and of the cerebral faculties, and intends, at a later time, to mention the special nervous attacks confounded hitherto with those of hysteria, from which they are entirely distinct, and which disappear as the functions of the stomach are re-established. At present he confined himself to the disorders of sensibility.

Briquet has described among the constant symptoms of hysteria, hyperesthesia, in which he includes dermalgia, myosalgia, epigastralgia, rachialgia, etc.

Hyperesthesia is not a phenomenon appertaining to hysteria, but to dyspepsia, so frequent among hysterical subjects, and the eminent physician of La Charité has referred to this neurosis a symptom that does not belong to it. M. Leven has analyzed twenty-four observations of dyspepsia, a sufficient number of cases to show the conditions of the development of this symptom.

In ten cases only, out of the twenty-four, was the hyperesthesia lacking ; this shows the frequency of the symptom.

If hysteria is rather frequently met with in females, it is, on the other hand, very rare in males, so that it was for a long time denied that it could be produced in the masculine sex. But hyperesthesia was observed to be one-half more abundant in males than in females. Hysteria is a disease beginning generally at the

epoch of puberty, and decreases generally as the female advances in age and passes the thirtieth year. The symptom, hyperæsthesia, has been observed by M. Leven only three times in females between twenty and thirty years, and only twice in males ; it is most frequent after the age of forty, and is observed in both sexes up to sixty years.

Thus, there is no comparison between this symptom and the common manifestations of hysteria. Hyperæsthesia attacks, by preference, the left side of the body, in its superior portion, the skin of the thorax, the intercostal muscles, the skin of the back on the left side, and the underlying muscles. All of the back on the left side of the vertebral column, through the whole range of the dorsal vertebræ, is painful to pressure. The hyperæsthesia extends to the neck, the cranium, the region of the kidneys, and even the leg on the left side. It does not always begin on the left side ; it is often met with on the right, and in symmetrical parts on the back, thorax, etc. Nevertheless, it is most common on the left.

When the dyspepsia is very severe, both sides of the body are often hyperæsthetic, but one is more so than the other, and the hyperæsthesia may generalize itself in the skin, the muscles, the joints, the limbs, etc. Sometimes a surface, of some centimetres in extent, of skin or muscle, may become the seat of crises or attacks of severe pain, which the patient may even try to suppress by hypodermic injections of morphine. I have observed these in a woman of fifty-seven years, in men aged sixty-three, sixty-six, thirty-nine, and forty-two years. They occurred in the back and thorax of the left side, in the thorax on the right, in the region of the stomach, and behind the great tuberosity.

These have not been previously noticed ; they disappear as the stomach itself is restored to health.

M. Leven declares that the hyperæsthesia of dyspepsia is never accompanied with anaesthesia in other parts of the body, at least in an individual not hysterical. Anaesthesia is the characteristic of hysteria ; hyperæsthesia, of dyspepsia. In his service in the Hospital Rothschild, he had a woman, twenty-two years old, an invalid for many months, who exhibited hyperæsthesia of the right side, and anaesthesia of the left (upper member and thorax), and had explained it to his students as a case of hysterical dyspepsia. It was sufficient to merely use pressure over the ovarian region, to produce a hysterical attack.

The symptom, hyperæsthesia, *en résumé*, may be, nevertheless,

considered as appertaining to dyspepsia, and not to hysteria. It is rather more common in men than in women, at an advanced age rather than in youth ; it is aggravated with the dyspepsia, and disappears when a rational treatment is applied to the general condition.

POSTHEMIPLEGIC HEMI-ATAXIA.—J. Grasset gives (*Progrès Médical*, 1880, No. 46) an account of a patient who, after an irregular life, with all kinds of excesses, had a series of apoplectic attacks, always followed by right hemiplegia and embarrassment of speech, and came under his care after the fifth of these attacks. He was suffering then from right hemiparesis, some trouble in speech (speech slow, and tendency to use all verbs in the infinitive). The right hand, in repose, showed nothing abnormal, but whenever he attempted to use it, the fingers were seized with irregular contractions, preventing him, for instance, from writing, etc. When he extended the right arm, there were only slight oscillatory movements.

The patient left the hospital, and indulged in new excesses, so that that after two months' absence he returned with all these symptoms aggravated, the face involved in the hemiplegia, the ataxic movements exaggerated, and not affected by occlusion of the eyes, and generally much enfeebled. The patient died of generalized pleuro-pneumonia a little over a month later.

At the autopsy the principal points of interest were the following : Nothing abnormal in the right hemisphere, as shown in Pitres' cuts. In the left hemisphere there was found a focus of softening, occupying, in the pediculo-frontal section, the height of the striate body, and, in the frontal cut, the caudate nucleus, and the whole height of the optic thalamus, the internal capsule, and the lenticular nucleus. At this horizon the lower portion of the internal capsule is yellowish. The second focus of softening, of much less extent, occupied the internal (ventricular) third of the optic thalamus. The third, which was extremely minute, was situated in the lower portion of the thalamus, bordering the internal capsule, which, at this point, was intact. The other sections revealed nothing abnormal.

There were numerous adhesions of the dura and arachnoid along the interhemispheric fissure, slight atheroma of the arteries at the base of the brain, and evidences of chronic meningitis of the convexity of the left hemisphere. The case is of clinical rather than of pathological interest, and does not throw very

much light on the question of cerebral localizations, except, perhaps, in a negative way. The phenomena of hemi-ataxia, after lesions of the brain, are not altogether novel; we have ourselves under observation one case of the kind, following an apoplectic attack, with a history of temporary complete right hemiplegia of the limbs, and crossed paralysis of the face, which still remains, to some extent. There is also disorder of speech. The symptoms seem to favor a lesion of the pons in this case, and that agrees with the pathological findings in somewhat similar cases reported by Leyden and Kahler.

IDIOPATHIC LATERAL SCLEROSIS.—Dr. John E. Morgan describes in the *British Med. Jour.*, January 29th, several cases of spastic spinal paralysis, one of which proved fatal. An autopsy was made with microscopic examinations of numerous sections of the spinal cord by Dr. Julius Dreschfeld. The lesions found were patches of sclerosis, of varying extent, in the lateral columns, most marked in the dorsal region, but nowhere trespassing on the anterior or posterior horns or the anterior or posterior columns. Sections were sent to M. Charcot, who found the lesions very characteristic, and who said the case was unique, as far as at present observed, in the exclusive involvement of the lateral columns in the sclerosis, without any participation of the posterior columns.

HYDROPHOBIA.—The following are the conclusions of a memoir by M. Debove (of Pau), read by M. Beauvais at the session of the Société de Médecine, Paris, July 19, 1880, as given in the *L'Union Médicale*, November 14th.

This memoir may be summed up in one principal conclusion, taking in, in its *ensemble*, the question of pathological physiology that we have studied in detail, according to the results of reasoning and experiment.

The producing agent of hydrophobia is not absorbed. It propagates itself insensibly along the nerve-fibres that are affected by the virulent liquid.

As regards the secondary conclusions, which are only the development of that announced, they are comprised in the following propositions :

1. The propagation of the hydrophobic virus is done by way of the axis filaments and the corresponding nerve-cells.
2. The sensory nerve-fibres are probably alone affected, to the exclusion of the motor ones.

3. The morbid agent progresses slowly, in a *centripetal* direction, from the locality of the bite to the medulla, and very rapidly, in a *centrifugal* direction, from this last-named organ back to the sensory nerves from which it comes.

4. The symptoms of hydrophobia appear at the moment when the virus reaches the medulla, and are frequently announced by pain radiating only along the corresponding nerves coming from the seat of the bite.

5. The period of incubation is, as a rule, the shorter, the less the distance of the wound from the medulla. Hence, it is shorter in infants than in adults, with wounds of the face than with those of the limbs, and, probably, in persons of small than in those of large stature.

6. Everything leads us to believe that, in certain cases, the transmission of the hydrophobic virus may occur by a recurrent route; that is, after having begun at the peripheral end of torn or denuded nerve, it continues its course by way of the anastomoses of this nerve with an adjoining one, and follows the latter to the mesencephalon.

7. The anatomical dispositions that multiply the flexures of a nerve, or the circumstances that affect its nutrition seem to increase the duration of the period of incubation, and *vice versa*.

8. The morbid phenomena which characterize the period of invasion, affect the general and special sensibility, which first becomes exquisite, and ends by being exhausted, in some cases finishing with paralysis. Thus, paralysis of the vaso-motor centres in the medulla causes congestions of all the organs, and, consecutively, asphyxia and considerable elevation of temperature.

9. The lesions of hydrophobia are of two kinds: the one, *primitive*, visible only with the microscope, and consisting in more or less marked opacities of the nerve-cells, and in a granular condition of these cells, and a certain number of afferent or efferent fibres; the other, *late*, visible to the naked eye, and consisting in more or less marked congestions of various organs.

10. Once in contact with the nerve-cells of the medulla and the pons, the virus, in all probability, is rapidly transported in all directions, according to routes of the fibres from the nerve-centres.

11. It is probable that when the nerves thus charged with the virulent principle are superficial, under a very thin and permeable mucous membrane, this contagious principle may traverse the mucous membrane and show its effects on the epithelium in the form of vesicles of various sizes. From this may arise the viru-

lence of the buccal secretion, so well attested, on the one hand ; and, on the other, the formation of lyssas, in certain rare and exceptional cases ; and still also the dangers to be feared from suction.

12. The characteristic lesions of hydrophobia may be unilateral, as is demonstrated by reason aided by attentive observation. Hence, it follows that the fluids may become virulent only on one half of the mouth, and, therefore, only one half of the bites are effective ; a view confirmed, in fact, by the statistics collected by Renault.

13. The virulence of the bronchial form is dubious.

14. The bites of wolves are the more dangerous, as they are given with greater ferocity, and insure more fully the mixture of the fluids of the two sides of the mouth.

15. The virulence of the buccal liquids persists twenty-four hours after death. Hence the possibility of experimenting variously on animals with security.

16. Hydrophobia belongs to a large class of affections of peripheral origin, such as certain eruptive fevers or certain neuroses, like vaccinia and variola from inoculation, and probably syphilis, also such as ascending neuritis, epilepsy, tetanus, certain forms of cylindrical neuroma of the skin, etc.

17. The transmission of the virus by the nerves, or the nervous theory, is one of extreme simplicity, that has already led an English physician of the last century, Hicks, to put into execution one of the most striking therapeutic indications of this disorder.

18. On various accounts we are led to substitute this theory for the blood-disease theory that has always prevailed, and still prevails, among physicians.

19. A complete demonstration of the nervous theory has only become possible by the recent progress of statistics and of pathologic histology.

20. This theory leads us to very precise therapeutic indications, while the blood-theory has, up to date, apart from the practice of immediate cauterization of the wound, produced only a profound skepticism, and a treatment grossly empirical and nearly worthless.

As regards the therapeutic indications deduced from the present study of the pathology of the disease, they are four in number, and are :

- i. To destroy the virus locally.

2. To prevent its transmission to the medulla in case it is not destroyed.

3. To obtund, in advance, the sensibility of the medulla during the whole period of incubation, and as thoroughly as possible, in case the two preceding indications were impossible to be fulfilled.

4. To act also with quickness and energetically on this same sensibility of the medulla, by hypodermic injections into the veins ; to fight, in fact, the ordinarily rapid progress of asphyxia.

The above conclusions seem to us fanciful rather than otherwise. The idea of the virus circulating in the nerves is not altogether a physiological one, as nerves are not exactly organs of circulation. It is possible, however, that some at present undiscovered morbid process may extend itself by these routes, and the nervous theory, in this sense, be correct. But it requires a different phraseology from that adopted by M. Debove.

At the session of the Acad. de Médecine, November 2d (rep. in *Gaz. des Hôpitaux*), M. Colin reported a case of a sub-officer of artillery, bitten by a rabid dog, in Algeria, November 2, 1874 ; a comrade, bitten at the same time, dying forty days later of hydrophobia. The officer felt no inconvenience whatever till four and a half years later, when he also was seized with the disease and shortly succumbed. The military authorities requested M. Colin to carefully examine the case, since, the wound having been received when in the line of his duty in succoring a comrade, the pension to his family depended upon whether that was the cause of his death or not. M. Colin was able to answer the query to his own satisfaction in the affirmative, notwithstanding the long period of incubation. The circumstances all precluded any other disease, such as alcoholism, etc.

He asks: Is this remarkably lengthened incubation altogether inexplicable ? Hydrophobia has no fixed period of latency, and he compared it in this respect to certain cases of pernicious malarial fever, in which the outbreak of the disease only occurs long after exposure.

The case formed the subject of discussion at the next following meeting of the Academy of Medicine. M. Bouley doubted the correctness of the diagnosis ; so long a period of incubation was altogether remarkable, and called for a great reservation of opinion in regard to it. M. Colin also had not verified his diagnosis by the discovery, at the *post-mortem*, of the characteristic lesion noted especially by MM. Gombault and Nocart, of foci of white

globules in the perivascular lymphatic sheaths in the floor of the fourth ventricle. Another equally important diagnostic point, that of inoculation of rabbits, had also been neglected by M. Colin. The point that the patient had not been bitten in the interim was not conclusive, since inoculation might occur in other ways, such as by the dog licking the hand, etc.

M. Maurice Raynaud said that the lesions described by M. Bouley were not alone characteristic of rabies ; they also occurred in fatal chorea.

M. Bouillaud supported M. Colin, and the latter, replying to M. Bouley, admitted that he had not sought for the lesions described by M. Bouley, as he did not suspect their existence, and, moreover, the facts stated by M. Raynaud deprived them of much of their importance. He regretted that he had not experimented on rabbits, but the experiments on these animals, alluded to by M. Bouley, had not been made when he observed his patient, and he considered himself somewhat excusable. He had, moreover, in his investigations, found that the patient had been very cautious in regard to exposing himself to any inoculation in any manner.

As the case stands, it is certainly open to doubt, if any one choose to discredit the diagnosis, which was not absolutely perfected and confirmed by all the tests now available. But it cannot be positively denied on any *a priori* grounds, and the long period of latency does not, of itself, absolutely discredit it. We do not know how long a time hydrophobic virus may take to produce its ultimate effects, and if six months or a year are not uncommon, we cannot say that in altogether exceptional cases it may not require a still longer period. But this case only suggests, does not prove this.

While the above case, if admitted as genuine, shows the extreme limit, so far as reported, of the incubation of hydrophobia in the human species, a recent report on the disease by Dr. T. G. Richardson, of the University of Louisiana, mentions two cases briefly, that are remarkable for the shortness of the period between the bite and the outbreak of the disease. In one case it was seven, and in the other only four days ; both were young females, aged respectively eighteen and fourteen years. The locality of the bite, in both cases, was the lower limb (in one the ankle) and, taken together with the short period of latency or incubation of the disease, does not seem to favor the theory above given by M. Debove, that the manifestations of the hydrophobic symptoms will be later in appearance the greater the distance be-

tween the point bitten and the nerve-centres. One of these two cases, that in which the incubation was seven days, was treated with curare, but with the usual result. There seems to be as yet no satisfactorily assured case of recovery from undoubted hydrophobia in the human species.

At the session of the Académie de Médecine, January 18th (rep. in *La France Médicale*), M. M. Raynaud communicated, for M. Lannelongue and himself, the results of their experiments on the transmission of hydrophobia. Conveying the disease from the dog to the rabbit, the period of incubation is only fifteen days, a very valuable discovery, provided that the disease is really hydrophobia. They had experimented on some forty rabbits.

On December 8th, a child suffering with hydrophobia was brought to the Hospital St. Eugenie; the disease first appeared December 7th ; the bite occurred November 11th ; the incubation, therefore, was only twenty-six days. The first marked symptom was dyspnoea, and the child died four days after the onset.

Three series of experiments were performed. In the first, four rabbits were inoculated with the saliva of the child while still living; three of these quickly succumbed, the fourth recovered, after having apparently suffered severely. Two rabbits, inoculated with the blood, survived ; a fact which seems to indicate that the saliva, rather than the blood, is virulent.

After the death of the child, a second series of experiments was instituted. Inoculation with bronchial mucus killed the rabbits, while a trituration of the salivary glands, introduced under the skin, gave dubious results ; only one rabbit thus inoculated died. At the autopsy of the child, the ganglia of the neck, on the side of the face bitten, were strongly tumefied ; and the scrapings from these ganglia killed one of two rabbits into which it was inoculated. The two roots of the trigeminus, cut close to the pons and inoculated under the skin of a rabbit, caused death at the end of three days ; hence it appears that the nervous system may serve as a vehicle for the poison.

In a third series of experiments the inoculation was made from a dead rabbit to a living one. These inoculations caused death, even when the blood was used.

To sum up, out of 38 inoculations 26 were followed by death, thus seemingly proving that hydrophobia is transmissible from man to the rabbit. The interval between the inoculation and death was about 45 hours ; when practised from rabbit to rabbit it averaged only 29 hours.

These observations are very difficult, as we are but little acquainted with the symptomatology of hydrophobia in the rabbit; in many cases there was paraplegia, and convulsions occurred in eleven.

It cannot be objected that the rabbit is an animal that succumbs to the least injury, for the inoculation with saliva does not affect its health, and those operated upon died not of septicæmia, but of rabies. A very conclusive experiment would be to inoculate the dog from the rabbit with hydrophobia; up to the present this has not been done.

In the discussion of M. Raynaud's communication, MM. Colin and Dujardin-Beaumetz doubted whether the cause of death in the rabbits was rabies; they were inclined to consider it rather due to septicæmia. In reply, M. Raynaud recognized the force of their objections, but held that if septicæmia was the cause of death the characteristic vibron was lacking, and he thought that M. Lannelongue and himself had sufficiently guarded against that complication. It is true that what was seen in the rabbits did not resemble the classic hydrophobia.

M. Pasteur then reported that he had experimented with the oral mucus from the same child as MM. Raynaud and Lannelongue, inoculating two rabbits, both of which died 36 hours after the operation. The saliva of these rabbits, introduced into others of the same species, also caused death. In the first ones he found swelling of the lymphatic ganglia, and in these and the trachea numerous hemorrhages. In the blood, examined immediately, he found a very peculiar microscopic organism; a little rod, slightly constricted in the middle, and not over a thousandth of a millimetre in diameter. When placed in cultivating liquids, especially veal broth, it multiplied exceedingly, presenting the same general shape, but more pronounced, sometimes resembling the figure 8. The inoculations with these liquids produced always the same results.

Whether in these cases the cause of death is rabies is a question; the fact of non-inoculation is worthy of consideration. It is not septicæmia, for the microscopic organism and symptoms of septicæmia are lacking. M. Pasteur was of the opinion that it is a new disease. It was not transmissible to guinea pigs, and when a dog was inoculated he died within three or four days, but not of hydrophobia.

M. Colin objected that the organism described by M. Pasteur was common in cases of septicæmia. In reply, M. Pasteur stated

that there was no animal more susceptible to septicæmic poisoning than the guinea pig, and yet he had failed to produce the disease in them by inoculation.

M. Bergeron did not believe that the rabbits inoculated succumbed to septicæmia, and yet they did not present the symptoms of hydrophobia, and he asked whether there was not a simple question of dosage.

M. Colin called attention to the change of form noticed by M. Pasteur in his organism from cultivation, and asked how we could be sure they were not new products of putrefaction. During digestion the intestines of herbivorous animals contain numerous organisms like those of charbon, and which yet do not give rise to that disease.

M. Pasteur replied that after an animal died of charbon the charbonous bacteria disappeared in proportion as putrefaction advanced, and the organisms that replaced them did not produce charbon.

M. J. Guerin noted the fact that some of M. Raynaud's inoculated rabbits recovered. These were abortive forms of disease. M. Bouley had at one time described to him the case of a girl who had the symptoms of hydrophobia in a mild form, and who recovered ; her case was perhaps an abortive one of the disease.

M. Gosselin said that he would believe that M. Raynaud had inoculated rabbits with hydrophobia, only after the disease had been retransmitted to the dog in its characteristic form.

At the session of January 29th, M. Doleris reported the results of his inoculations of rabbits from the child already mentioned by MM. Raynaud and Lannelongue. He observed the following phenomena : loss of appetite, vertigo, weakness of posterior limbs, very little excitement, sometimes slight convulsions, and terminal collapse. He thought that the death in these animals was caused not by rabies, but by septicæmia, and that there are two kinds of virus, the one hydrophobic and the other septicæmic, and it was difficult to determine the proper conditions for the production of one rather than the other.

The following are the titles of certain papers recently published on the pathology of the nervous system and mind and pathological anatomy.

MANN, Removal of both Ovaries for Hystero-Epilepsy without Controlling the Convulsions ; Rapid Improvement under Central

Galvanization, etc. *N. Y. Med. Jour.*, Jan. BENEDIKT, On the Question of the Four Frontal Convulsions Type. *Centralb. f. d. Med. Wissensch.*, No. 46, 1880. MANCINI, Cerebral Localizations and especially Aphasia. *Lo Sperimentale*, Oct. BROWN-SEQUARD, Remarks on some of the Physiological and Pathological Influences of the Nervous System on Nutrition. *Brit. Med. Jour.*, Dec. 11. HUTCHINSON, On Structure of Peripheral Organs. *Nordiskt. Med. Arkiv*, Bd. xii, 1880, No. 26. FÜRST, The Nerves of the Iris. *Nordiskt. Med. Arkiv*, xii, 1880, No. 19. CHAPMAN, The Brain of the Orang. *Science*, Dec. 31.

c.—THERAPEUTICS OF THE NERVOUS SYSTEM AND MIND.

ARSENIC IN TETANUS.—Dr. John T. Hodgen reports (*St. Louis Courier of Medicine*, December 9th) a case of traumatic tetanus following a compound comminuted fracture of the os calcis and a comminuted fracture of the thigh, from a fall. The treatment was commenced with the hypodermic injection of ten drops, Fowler's sol., the use of chloral, thirty grains of chloral every hour, till three doses had been given, and then it was discontinued, and the injections of arsenic alone depended upon, and given at intervals of four hours. Under this treatment the tetanic symptoms disappeared, but the patient died of septicæmic poisoning from his wound three weeks after the injury.

No bad effects were experienced from the use of the arsenic or the method of its administration, not even nausea, and the injections appeared to promptly relieve the rigidity, substernal pain, the difficulty of deglutition, and also controlled the small, quick, and fluttering pulse. The patient asked himself for their repetition.

NERVE-STRETCHING.—In addition to the cases noted in our previous issues, there have been reported in the service of M. Debove two new cases in which nerve-stretching has had the happiest effects in locomotor ataxia. In the first case (*Progrès Médical*, No. 50, 1880) the patient was entirely relieved by the operation of his ataxic pains, and the gastric attacks and incoördination also disappeared almost or quite entirely. The second patient having observed these effects in the person first operated upon, demanded to have the same performed on himself. The fulgurant pains were most troublesome in the arms, and therefore the

operation was performed on the median and radial nerves of the right side. The immediate results, as stated by M. d'Olier in the *Progrès Médical*, No. 52, were a considerable diminution of the pains in the right arm, and their disappearance in the left and in the legs, diminution of the plantar anaesthesia on the left side, and marked improvement in coördination, so that the patient was able to walk unsupported, which could not be done previously. There was also improvement in other respects ; the patient regained his regular, undisturbed sleep, and refused anodynes, after the operation, as needless.

This operation, judging from these and the other cases reported, seems likely to make locomotor ataxia a surgical disease, as far as therapeutics are concerned, and they go far to give an altogether different face to its prognosis. We shall await further observations and experience with this method of treatment with the greatest interest.

At the session of the Soc. de Biologie, February 5th (rep. in *Le Progrès Médical*), M. Laborde exhibited two guinea pigs in which he had stretched the sciatic nerve, and he concluded from his experiments that if the operation was thoroughly done it caused the complete disappearance of the sensitive current. In fact, in these guinea pigs he pinched the two external phalanges, innervated, as is well known, by the sciatic, and they remained unmoved ; but if he pinched the same part of the corresponding limb in which the nerve had not been stretched, he immediately produced pain and reflex movements, extending to the other limb. The descending nerve-current is therefore preserved ; and, for a further proof, the two internal phalanges of the limb operated on, which are innervated by the crural nerve, preserved their sensibility intact. These results are permanent, both in the rabbit and in the dog. M. Laborde had examined at the Bicêtre the patient on whom M. Debove had first operated, and in whom the fulgurant pains had disappeared since the operation. But, besides this effect, the conscious and reflex sensibility in this patient were notably different on the two sides. On the side operated upon, the sensibility and the reflexes were notably enfeebled. This is a valuable fact, since it agrees with the results of experimentation on the lower animals. It appears necessary, therefore, in nerve-stretching to continue the traction till the sensibility is markedly affected.

PURGATIVES IN TETANUS.—Dr. Alfred Bron (*Practitioner*, December) protests against the customary employment of active

purgation in the treatment of tetanus, and which is recommended in all, or nearly all, the treatises on the disease. In the course of a rather extensive experience with tetanus in the West Indies, he began with the usual practice in this respect, and with uniform ill success. In many cases he observed that when a patient was apparently doing well, the administration of a powerful purgative would be followed by an exacerbation of all the bad symptoms, and speedy decease. Since then he has abandoned the use of these agents, and has had the satisfaction of seeing a large proportion of his cases recover.

He is satisfied that in a large proportion of cases of this disease the bowels may be safely let alone, to act of their own accord, and the patient be the better off for being spared this source of irritation. Only in those cases in which there is abdominal distress, different from the usual epigastric pain of tetanus, and a desire to go to stool without ability to pass faeces, does he advise the use of laxatives ; and in these cases he recommends only the milder laxatives, and the only one he has used in such cases and can recommend is castor oil, in drachm doses, at pretty frequent intervals ; it acts without producing abdominal irritation, but it is well to add a few minimis of tincture of hyoscyamus to each dose. He says, in conclusion, that he has never had occasion to regret not having purged a patient in tetanus, but he more than once had occasion to repent for having followed the time-honored practice of the text-books.

HOT-WATER COMPRESSES IN TETANUS.—Dr. C. H. Spörer (*St. Petersb. Med. Wochenschr.*, Oct. 2d) recommends the use of hot-water compresses in the treatment of tetanus. He reports three cases : one traumatic, one connected with rheumatism, and one very complicated case of cerebro-spinal meningitis, in all of which these applications produced great and lasting relief, which he is not inclined to attribute to any other of the measures employed.

His method of application is simple. He wrings out a suitable piece of flannel with water as hot as can be borne by the naked hand, and applies it along the whole spine, from the occiput to the sacrum. The temperature of the water by the thermometer should be from 122° F to 131° F. This application in his cases showed its effects, in each case, in five or ten minutes, in relieving the tetanic attacks.

CONIUM.—A communication from M. Bochefontaine was presented to the Acad. des Sciences, Paris, in October last (rep. in *L'Union Médicale*), on the physiological action of conium. In 1878, in connection with M. Tiryakian, he had communicated to the Academy some results of experiment from which they had deduced that there existed in conium maculatum two active principles, one of which, coniine or conicine, had the action attributed to hemlock, and the other, an action somewhat like that of curare. Since then, in July, 1879, M. Prevost (of Geneva) had published the conclusions of a memoir tending to show that the paralysis caused by bromohydrate of conicine was due to its action on the motor nerves. Their results being different, it appeared necessary to M. Bochefontaine to seek the reasons for this difference, and he therefore commenced a new series of experiments on the physiological and therapeutical action of coniine. The following are the results :

Coniine is absorbed by the mucous membrane of the digestive tract in man, as in the dog, and it produces a general enfeeblement and the disappearance of severe stomachal pains. A few drops of this alkaloid, applied directly to certain mucous membranes, act directly as an analgesic, and even causes sleep for many hours. Curare does not have this effect.

The experiments from which the other differences between the alkaloid of hemlock and curare were shown were as follows :

1. Into the saphenous vein of a large, healthy dog, after having divided the sciatic nerve, he injected about seven centigrammes of coniine in a convenient hydro-alcoholic solution. The reflex activity of the medullary spinal gray axis was speedily abolished, and faradization of the central portion of the divided nerve caused neither manifestations of pain nor reflex movements, or, more exactly, it did not, as before the injection, cause either movements of the head or members or cries, while excitation of the peripheral portion still produced its usual effects.

May we not here also cite a characteristic difference between our alkaloid and curare, noticed by Mm. Jolyet and Pelissard, and then by M. Prevost ; the former paralyzing the vagus before any other nerves, thus reversing the action of curare.

2. In two frogs we cut across the sacrum, and tied the trunk in its lower part, with the exception of the sciatic plexus. Then in one a drop of curare was injected under the skin of the anterior limb, and in the other the same quantity of a suitable solution of coniine. As the two animals lay flaccid, when we pinched the

digits of the intact fore limb of each, or touched the skin of the axilla of one side, or around the anus, with a drop of acid, the curarized frog made the motions of defence or flight with the posterior limbs, while the other remained immovable.

From these it follows that coniine diminishes or destroys the physiological functions of the nerve-centres before it acts like curare on the "nervo-muscular connections" (Vulpian). In both dogs and frogs it finally abolishes the nervous motor excitability, if given in sufficient amount; but then it is inevitably fatal for frogs as well as mammals. The physiological action of this alkaloid is therefore different from that of curare.

As to the action of the bromohydrate derived from conium, the following are the results of experiments with the products crystallized in the same general form and prepared by M. Mourrut, mainly in M. Vulpian's laboratory.

We may divide these bromohydrates into two groups:

a. These have an amber color and resemble samples formerly used by M. Tiraykian and myself. These, more toxic than those of the next group, act very much like coniine, they represent the principal physiological action of that alkaloid.

b. The second group, colorless or slightly pearly, purified by many crystallizations, and similar to that used by M. J.-L. Prevost, are shown to be less toxic than the yellowish salts, and act differently from them. Frogs paralyzed by from 15 to 20 milligrammes of these purified bromohydrates lose their motor excitability like curarized frogs, but do not recover, like those benumbed with curare and otherwise placed in the same conditions. A little smaller dose, sufficient, nevertheless, of incompletely numbing frogs, so that they can still execute some spontaneous movements, will yet produce death after two or three days.

To the query whether these alkaloids differ chemically or not, an answer cannot yet be given.

As regards the comparative action of hemlock and curare, it can be apparently formulated thus: *Hemlock may act like curare, but it causes still other physiological effects not observed in curarized animals.*

ACTION OF DIGITALINE ON THE BLOOD-VESSELS AND THE HEART.—F. Klug (*Archiv f. Physiologie*, 1880, p. 457), after quoting the rather contradictory literature on the subject, records his results. Examining, in the first place, the muscles of the frog,

he found that digitaline diminishes gradually excitability of the skeletal muscles until paralysis sets in.

On the nervous system it acts in an inverse manner, at first increasing the irritability, and, after directly irritating, secondary depression and ultimate paralysis follow.

One milligramme of digitaline is hardly sufficient to kill a frog (*Rana esculanta*). The agent further stimulates the muscular tissue of the blood-vessels, and thus causes persistent muscular spasm of peripheral origin; hence the blood-pressure rises. In larger doses it produces a temporary irritation of the vagus centre, without destroying finally the irritability of that nerve. The blood-pressure will at last sink on account of feeble cardiac action. This is due to the direct influence of the alkaloid upon the heart muscle, and cannot be stopped by irritation of the vagus. The heart stops finally in systole.

The results on mammals the author condenses into the following conclusions: Digitaline acts less energetically upon the blood-vessels of the rabbit than upon those of the dog. In small doses it raises the blood-pressure. In larger quantities it influences the cardiac activity. Large quantities check the heart by irritation of the vagus centre. This condition is but temporary. When it ceases there follows no paralysis of the vagus. The heart will finally beat abnormally fast from increased activity of the accelerating ganglia. Death is caused by paralysis of the central nervous system. The rise of blood-pressure is due to the combined action upon the vaso-motor centre and the muscular walls of the vessels. The latter influence accounts for the rise of blood-pressure even after dissection of the spinal cord.

THE ACTION OF ANÆSTHETICS.—The *British Med. Journal* of December 18th, contains an elaborate report, by the Scientific Grants Committee of the British Medical Association, on the action of anæsthetics, by a committee consisting of Drs. J. G. McKendrick, Joseph Coats, and David Newman. The report is illustrated by graphic tracings and cuts of the apparatus, and contains elaborate discussions on the points involved. The subjects of the experiments were frogs and rabbits, and, as will be seen, the more special subject of investigation was the comparative action of chloroform, ether, and ethidene dichloride. The results, which alone we have the space to give, are summed up as follows:

A.—*Clinical.*

- I. The dose (administered on a towel) is greater with ethidene

than chloroform ; but the time necessary to anæsthetize the patient is longer with the latter than the former agent.

II. The number of cases of sickness and vomiting is about the same with the two agents, but the duration is considerable protracted in the case of chloroform ; the occurrence of these symptoms have no relation to the length of time the patient has been under, or reference to the quantity of anæsthetics administered in a given time.

III. With both agents, the pulse-respiration ratio is considerably altered in a certain number of cases, the pulse falling as the respirations increase in frequency. With chloroform, this change is not only much more marked, but its occurrence is also more frequent than with ethidene : the proportion, in our experience, being nine of the former to two of the latter. There is also a greater tendency, in cases of chloroform, to retardation of the heart's movements, and to dicrotism.

B—*Physiological.*

I. The effect of anaesthesia with chloroform is to increase the amount of carbonic acid exhaled in a given time. The results of our investigations, in connection with the effects of anæsthetics on the gases of the blood, are not sufficiently reliable to permit us to give results.

II. Both chloroform and ethidene, administered to animals, have a decided effect in reducing the blood-pressure ; while ether has no appreciable effect of this kind.

III. Chloroform reduces the pressure much more rapidly, and to a greater extent, than ethidene.

IV. Chloroform has sometimes an unexpected and apparently capricious effect on the heart's action, the pressure being reduced with great rapidity almost to *nil*, while the pulsations are greatly retarded, or even stopped. The occurrence of these sudden and unlooked for effects on the heart's action seems to be a source of serious danger to life—all the more that, in two instances, they occurred more than a minute after chloroform had ceased to be administered, and after the recovery of the blood-pressure.

V. Ethidene reduces the blood-pressure by regular gradations, and not, so far as observed, by these sudden and unexpected depressions.

VI. Chloroform may cause death in dogs either by primarily paralyzing the heart or the respiration. The variations in this

respect seem to depend, to some extent, on individual peculiarities of the animals : in some, the cardiac centres are more readily affected; in others, the respiratory. But peculiarities in the condition of the same animal very probably have some effect in determining the vulnerability of these two centres respectively ; and they may both fail simultaneously.

VII. In most cases, respiration stops before the heart's action ; but there was one instance in which respiration continued while the heart had stopped, and only failed a considerable number of seconds after the heart had resumed.

VIII. The use of artificial respiration was very effective in restoring animals in danger of dying from the influence of chloroform. In one instance, its prolonged uses produced recovery even when the heart had ceased beating for a considerable time.

IX. Under the use of ethidene, there was, on no single occasion, an absolute cessation either of the heart's action or of respiration, although they were sometimes very much reduced. It can, therefore, be said, that, though not free from danger on the side of the heart and respiration, this agent is in a high degree safer than chloroform.

X. In regard to the effect of anæsthetics upon the pulmonary circulation, as in the experiments on the effects of the anæsthetics upon the blood-pressure, it may be stated that chloroform produces the most immediate effect, ether the least, while ethidene occupies an intermediate position.

XI. The quantity of air and the length of time required to restore the circulation in the lung, are in an inverse ratio to the amount of anæsthetic vapor and the time necessary to stop it.

XII. The changes produced in the lung are the same in all ; the only difference being in the rapidity of their occurrence.

XIII. The anæsthetics produce the following changes in the lungs : (1) retardation and ultimate stoppage of the circulation in the lung, first in the capillaries, then in the arterioles, and subsequently in the larger vessels ; (2) the epithelium cells of the meshes and their nuclei are no longer apparent ; (3) the capillaries contract slightly, and their walls become less distinct, or even disappear from view, and the enclosed corpuscles may become more or less disintegrated.

XIV. The effect of ether and ethidene upon the heart, after artificial respiration for seven and five minutes respectively, is simply to produce a retardation of the impulses—ethidene having the most marked effect. Chloroform not only produces a retar-

dation of the pulse, but the ventricular contractions are delayed and slightly separated from the auricular, and an auricular contraction may immediately follow the ventricular. The auricular contractions frequently occur without any corresponding ventricular movements.

C.—*Practical.*

The conclusions to be drawn from the above observations are these :

I. It is not only necessary to watch the effect of the anæsthetic upon the pulse, but it is also requisite to have regard to the respiration. We must not only take into account the danger of sudden stoppage of the respiration, but must also remember that in the event of abnormal increase of respiratory movements, it may become essential, for the safety of the patient, to temporarily discontinue the administration.

II. Owing to the tendency of chloroform and ethidene—particularly chloroform—to reduce the blood-pressure suddenly, not only during the administration of these agents, *but also after they have been stopped for some little time* (a source of serious danger), it is necessary for the person who has charge of the administration of the drug to be on the lookout for symptoms of this occurrence, both during the time the agent is being given, and for some time after the patient has recovered from its more evident effects.

III. The danger of death from stoppage of the respiratory functions must be borne in mind in every case in which anæsthetics are given ; but of perhaps greater importance is the danger from interference with the proper action of the heart—particularly when it is remembered that, by artificial means, we can combat the former contingency. It might even be advisable, in certain cases, to introduce a tracheal-tube by the mouth, so as to enable us to force air into the lungs by means similar to those adopted in experiments with animals ; or, in circumstances where such a procedure was impracticable, tracheotomy might be performed with the same object in view. Artificial respiration should be continued, even though all evidence of cardiac action has ceased.

IV. As regards comparative danger, the three anæsthetics may be arranged in the following order : chloroform, ethidene, ether ; and the ease with which the vital functions can be restored may be conversely stated thus : the circulation is more

easily re-established when the cessation is due to ether than to ethidene ; and when the result of ethidene, than when chloroform has been used. The advantages which chloroform possesses over ether—in being more agreeable to the patient, and more rapid in its action, in the complete insensibility produced by it, and the absence of excitement or movements during the operation—are more than counterbalanced by its additional danger.

V. The chief dangers are : (1) sudden stoppage of the heart ; (2) reduction of the blood-pressure ; (3) alteration of the pulse-respiration ratio ; and (4) sudden cessation of the respiration. The danger with ether approaches from the pulmonary rather than from the cardiac side, so that, by establishing artificial respiration, we have a means of warding off death. Its disadvantages are, to a great extent, obviated by the use of ethidene ; whilst the dangers of chloroform are also reduced to a minimum.

The committee propose, in case it is thought best to continue the investigations, the following lines of future research : 1. Specific action of anæsthetics upon the heart ; to determine whether they act (*a*) on ganglia, (*b*) muscular protoplasm, or (*c*) on both. 2. The action of anæsthetic agents on the medullary centres ; (*a*) cardiac, (*b*) respiratory, (*c*) vaso-motor. 3. Specification of anæsthetics on pulmonary tissue.

The committee now feel that it is unnecessary for them to undertake clinical observations, except in the way of taking simultaneous tracings of the pulse and respiration ; and for this purpose they have devised a special apparatus. They suggest that schedules similar to one published in their report be distributed all over the world to collect information. They are especially desirous of information from America, as the statistics of ether-administration in England are not sufficiently numerous for purposes of comparison.

THE VALUE OF HOMATROPINE HYDROBROMATE IN OPHTHALMIC PRACTICE.—In a paper on this subject in the January number of the *American Journal of Medical Sciences*, Dr. S. D. Risley draws the following conclusions :

1. That homatropine hydrobromate in solutions of two, four, and six grains to the ounce is competent to paralyze the accommodation.
2. That in from sixteen to thirty hours this paralysis entirely disappears.

3. That dilatation of the pupil accompanies the paralysis and is more persistent, the probable duration being forty-eight hours.

4. That it is more liable to produce conjunctival irritation than atropia or duboisia.

5. That it produces far less constitutional disturbance than either of the old mydriatics.

CURARE.—M. G. Planchon (*Journ. de Pharm. et de Chim.*) says that, so far as our present knowledge extends, there are four different sections of northern South America where curare is prepared, and in each of these sections a different kind of *strychnos* is used as the source of the poison. These four sections, from west to east, are the following: 1. The region of the upper Amazon, the largest of all, comprising the rivers Solimoeus, Javiri, Ica, and Yapura. It furnishes the curare of the Ticunas, Pebas, Yaguas, Oregones. This is prepared from *Strychnos Castelnæana* (Wedd). 2. The region of the upper Orinoco to the Rio Negro. This contains the district visited by Humboldt in 1880. It furnishes the curare of the Maquiritaras and Piaroas, which is derived from *Strychnos guibleri*. 3. The region of British Guiana, furnishing the curare of the Macusis, Orecumas, and Wapisianas. This is derived from *Strychnos toxifera*, Schombemsk including *Str. Schomburgkii* Kl. and *Str. cogens* Benth. 4. The region of upper French Guiana furnishing the curare of the Trios and Rouconyennes, which is derived from *Str. Crevauxii*.—*British Med. Journ.*, Jan. 22, 1881.

THE ACTION OF ACONITIA.—B. Van Aurep (*Archiv f. Physiologie*, supplement, p. 161) examined three varieties of the alkaloid, the German, the English, and Duquesnel's crystalline preparation. Between the German and English there exist only quantitative differences. Doses of 0.05 milligramme of the former variety is fatal to the frog, while 0.2 milligramme of the English is necessary. The striking symptom is paralysis, preceded by symptoms of irritation. There exists an abnormal secretion of the skin, followed by dryness and a change in color toward black. The pulse is at first increased in frequency, especially with small doses. This is not due to the paralysis of the vagus, although this does occur, but the acceleration is much greater than can be produced by section of the vagus. The acceleration is followed by slackening and debility of the cardiac action. Before the heart is completely paralyzed there is often a stage of tumultuous, almost tetanic,

action, which may be called cardiac spasm. The sensory nerves diminish in irritability when under the influence of aconitia, but it requires large doses to paralyze them. The motor nerves are apparently not affected. Early loss of coördination and immobility of the animal are due to the depressing effect upon the brain.

The agent causes very decided dyspnœa, in large doses even stoppage of breathing. The effect is due to the action upon the respiratory centre. Clonic spasm and fibrillary contraction complete the description.

Duquesnel's crystalline aconitia has only been tested by Duquesnel and Gréhaut. The authors observed an effect, from small doses, resembling curare. Aurep could confirm this curare-like action, but found it feeble. The agent seemed more poisonous than the other varieties of the alkaloid; 0.02 to 0.03 milligramme are fatal to frogs. The symptoms resembled those produced by the other variety, but the crystalline preparation seems more irritating locally. It differs in its action on the heart by not accelerating it at first, and by not producing spasm. Its paralytic action on the heart is the same as that of the other varieties. No other striking differences are observed.

On mammalia the three varieties act alike. The Duquesnel's aconitia is fatal to rabbits in the dose of one-fourth milligramme, and to medium-sized dogs at double that quantity. It is hence the most poisonous of all known substances. The other varieties require two to four times the dose. Death seems to be caused by cardiac paralysis, but the experiments on mammalia were not extensive.

ERGOTINE, ITS DRAWBACKS AND DANGERS.—Dr. Boissarie (de Sarlet), in a note read at a recent meeting of the Paris Surgical Society (*Annales de Gynécol.*, June, 1880), draws attention to the possible dangers attending the prolonged administration of ergotine, particularly when given by the mouth. After briefly alluding to the great and varied utility of this energetic drug, he refers to the experience of M. Debove. This gentleman lately reported to the Hospital Medical Society the case of a young woman, æt. 25, suffering from albuminuria, who developed a gangrene of both inferior extremities. This gangrene had followed treatment by ergotine, extending over four weeks, during which time a daily dose of 0.02 had been administered. Although a month had elapsed between the cessation of the drug and the

appearance of the gangrene (and contrary to the opinion of M. Debove), the writer thought that the two events stood in causal relation to each other.

M. Dujardin-Beaumetz had also observed the supervention of gangrene, in a case of typhoid fever subjected to treatment by ergot of rye. The dose in this case was 1.0 daily, continued one month.

The author's case was that of a child, *aet.* 13, which, while in excellent general health, began to suffer from incontinence of urine. After having tried various drugs, without benefit to the patient, ergot treatment was commenced. Hypodermic exhibition of the medicine being refused, a daily dose of about 0.2 (= about 3 grains) was given by the mouth. At first the results of this treatment appeared to be marvellous, the incontinence being completely relieved for several days. But soon the old troubles reappeared, and after continuing the ergot for two months more without apparent benefit, the medicine was stopped. This was about February 20th. During all this time ill effects of the ergot had never been observed. On March 2d, however, the child began to complain of pains in the left side, general malaise was noticed, and the child seemed prostrated and was feverish. On the following day, the pulse ranged at 110, the pains persisted, occasional crepitant râles posteriorly. On the morning of March 4th, the expectoration became extremely fetid. The sputa were raised with painful efforts, appeared of a grayish color, were thick and profusely abundant. The condition of the child grew worse from day to day, the pulmonary gangrene spread, on the 10th the sputa showed plentiful sanguineous admixture. Later the hemorrhage became profuse, and on the 15th it became fatal. This abrupt appearance of acute pulmonary gangrene is ascribed by the author to the influence of the ergotine, and the fact is pointed out that in this case also, as in that of M. Debove, some time had elapsed after cessation of the drug before evil symptoms were first noticed. It seems, therefore, that the action of this powerful drug is truly a cumulative one; that it has the property of causing, sooner or later, a sudden explosion of formidable accidents, and that, therefore, new physiological researches are needful to explain the mechanism of its action. According to Dr. Boissarie, the principal conclusion to be derived from his observation is, that we should learn to abandon, more and more, the oral exhibition of ergot, and substitute in its place hypodermic administration of the drug. And

also that, when the latter method is inadmissible, to use smaller doses by the mouth, and avoid a protracted course of the medicine when so administered.—*Am. Jour. Obst.*, January.

THE ACTION OF ANÆSTHETICS ON THE REFLEXES.—The following is a translation of a short article in the *Centralblatt für die Medicinischen Wissenschaften*, No. 6, by Dr. Eulenburg, of Greifswald :

The narcosis produced in warm-blooded animals (dogs, rabbits) by the inhalation of the anæsthetic agents is accompanied by numerous different conditions of the reflex irritability. This may be increased or diminished ; it may also be extraordinarily varied, either quantitatively or qualitatively, or in relation to their succession in time in the different single reflexes and reflex groups (respectively, the tendon, periosteal, and fascial reflexes, those of the skin, cornea, conjunctiva, and iris). Besides minor varieties, we can determine the following principal types of their effect on the reflexes :

i. Certain anæsthetics (chloroform) produce, generally in the beginning of this action, a transient increase of certain reflexes (patellar reflex in dogs and rabbits), followed by their diminution and disappearance. The patellar reflex is always lost perceptibly before the corneal ; the disappearance of the latter generally occurs with the appearance of myosis and rigid pupil. *Vice versa* the corneal always reappears perceptibly earlier than the patellar reflex with the disappearance of the narcosis. The same phenomena are regularly observed in man under the influence of chloroform. But in man the nasal reflex always persists still longer than the corneal one, agreeing in this completely with the observations of O. Rosenbach on children in natural sleep. The nasal reflex in both these conditions disappears when the hypnosis is most complete. The condition of the patellar reflex is sufficient guide for operative purpose in chloroform narcosis.

2. Other anæsthetics (ether, and, to a less degree, certain ethyl combinations) when inhaled, frequently cause an enormous increase of certain reflexes (sinew or periosteal reflexes ; patellar, tibial, and foot reflexes in rabbits). These phenomena may, indeed, continue after the cessation of the narcosis. The corneal reflex is, at a rather late stage of ether narcosis, weakened, rarely entirely suppressed.

3. Other anæsthetics (especially the double chloride combinations—ethyl-chloride, ethylid-chloride, methyl-chloride) produce,

when inhaled, in dogs and rabbits, loss of the reflexes (without previous exaltation), and, indeed, the corneal here always disappears before the patellar reflex, and the latter always reappears before the former on the recovery from the narcosis. Here we may recall that Liebreich attributes to these agents a primary anaesthetic effect upon the sensory cranial nerves, and also that, according to my own observation, the corneal reflex disappears in asphyxia some time before the patellar reflex, as a rule.

4. Still other anaesthetics (for example, bromide of ethyl), when inhaled, affect the reflexes scarcely at all, or very slowly; the patellar reflex is gradually diminished without any previous rise; the corneal reflex becomes weaker, but is rarely altogether suppressed. Bromide of ethyl acts somewhat like ether; the different behavior may be attributed to the fact that ethyl bromide is decomposed in alkaline blood with the formation of soluble bromine; after inhalation of large quantities, bromine, in combination with an alkaline metal, is found in the urine.

According to these experiments the participation of the reflex apparatus stands in no definite connection or only in a sort of time-relation to the involvement of the psychomotor and psychosensory centres by the action of the anaesthetic. The degree of the narcosis and the extent of the anaesthesia are not at all proportional to the condition of single reflexes or reflex groups. The successive attacks on the separate cerebral and spinal reflex centres are throughout dissimilar with different anaesthetics. The relation with the commonly used hypnotics and sedatives is also dissimilar. Morphine, given hypodermically to the extent of 0.5 (= 7 grains) to rabbits and dogs, has but little effect on the reflexes, and morphine injected at the beginning of, or during the administration of the anaesthetic has no effect on the action of the latter in this respect. (In subjects of the morphine habit who used very large doses, I found the tendon reflexes perfectly unaffected.) Chloral hydrate, given to the extent of from 1.25 to 1.5 (= 18-22 grains) to rabbits, hypodermically, acted very similarly to chloroform, but without the primary exaltation of the reflexes; the patellar reflex gradually disappeared while the corneal reflex, in non-fatal cases, was generally retained, though diminished. Of the bromides, the potash salt, given subcutaneously to rabbits, in doses of 1. to 2. (= 15-30 grains), caused an initial increase of the patellar reflex followed by a decrease. Bromal hydrate and bromate of quinine exhibited no definite effects. The fatally-ending cases are excluded from considera-

tion. In so far as death resulted from asphyxia, the corneal reflex disappeared, as a rule, a little before the patellar, the latter being generally lost just previous to the exophthalmus, dilatation of pupils, and terminal dyspnœic convulsions.

ALCOHOL.—The following are the conclusions of a paper by Dr. J. D. Castillo, U. S. Navy (*Phila. Med. Times*, Oct. 23, 1880), based on some fifty odd separate experiments on drugs, etc.:

1. That alcohol, in small doses, causes an acceleration of the pulse, with increased cardiac force.
 2. That this acceleration of the pulse, and the increase of the cardiac force, are due to a direct stimulation of the heart.
 3. That alcohol, in larger doses, causes an acceleration of the pulse, with diminished cardiac force, and that this is due to a direct depression of the heart.
 4. That if the dose be excessive, the pulse-rate is diminished from the first, or the heart may be immediately arrested, being due to a direct paralysis of the heart.
 5. That the heart is always arrested in diastole.
 6. That small doses cause a rise of the arterial pressure.
 7. That large doses cause a fall of the arterial pressure.
 8. That these changes effected in the arterial pressure are due to the action of alcohol on the heart alone; in the former case, being one of stimulation, and, in the latter, one of depression.
 9. That alcohol in small doses is a cardiac stimulant, and, in large doses, a cardiac depressant.
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ABSINTHISM.—At the session of the Acad. de Médecine, Paris, Oct. 19, 1880 (rep. in *La France Médicale*), M. Lancereaux made a communication, in which he claimed that the effects of the use of absinthe did not reveal themselves solely in the acute and transient symptoms, such as convulsive phenomena, etc., following excess. It produced, when long continued, a series of gradually-and regularly-developing symptoms of intoxication, profoundly modifying the system, and often causing death. These symptoms, which affect especially the sensory and mental faculties, constitute what he calls the chronic type of absinthism, as opposed to the acute form.

There is still another form of intoxication, the hereditary type of absinthism. Each of these forms has great analogies with the pathological condition known as hysteria. The acute type recalls

the convulsive hysterical attack ; the second presents, in the male as well as in the female, disorders of sensibility, which it is impossible to differentiate from those of hysteria. Therefore, he believes that many of the so-called cases of hysteria in males (in France), are really only cases of chronic absinthism. The third of these forms is generally confounded with hysteria.

THE TREATMENT OF ALCOHOLISM.—Dr. J. K. Bauduy (*St. Louis Courier of Medicine*, Dec., 1880) deduces the following conclusions from a study of over eight hundred cases of alcoholism under his observation at St. Vincent's Asylum, St. Louis :

1. Acute alcoholism is a self-limiting affection.
 2. Acute alcoholism results, not from sudden withdrawal, but from excess and abuse of alcoholic "so-called stimulants," better called sedatives and narcotics in the doses in which they are taken.
 3. The expectant plan of treatment is the most successful.
 4. Opiates are dangerous, because they additionally derange digestion, and, acting as powerful cardiac sedatives, tend to paralyze the heart, and, finally, because they check elimination, interfere with the normal secretions and digestion.
 5. Sleep is never to be produced at risk or hazard to the patient, but is to be expected as one of the harbingers of a convalescence not to be forced.
 6. In acute alcoholism, as in many other acute diseases, the *vis medicatrix naturæ* is fully adequate, in most cases, to produce the happiest of results.
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ELECTRICITY.—Dr. Mossdorf, in a paper offered to the Gesellsch. f. Natur u. Heilkunde, at Dresden, April 3, 1880 (rep. in *Deutsche Med. Wochenschr.*, Dec. 11), recommends strongly the use of the constant current in those cases of diphtheritic paralysis that call for treatment. He uses the descending spinal current alone ; its effects, he claims, are remarkable, not only relieving the paralysis, but acting as a general tonic to the patient. It has the advantage also of causing no pain or inconvenience, even to a child, in its application.

Of course, though he says nothing as to the strength of the current, the general rule of caution should be observed.

Dr. Roberts Bartholow, in a clinical lecture published in the *Medical News and Abstract* for January, says, that in treatment

with electricity, not enough attention is paid to the durations and frequency of the applications. Galvanic applications about the head should be with moderate currents, should not last over five minutes, and may be repeated several times—say three a day. In neuralgias the *seances* should be of longer duration, and should be repeated at short intervals. Thus, he says, much better results would be obtained in sciatica, for example, than is usually the case, if they were each fifteen minutes long, and were repeated every three or four hours. In the treatment of muscular paralysis, however, with faradism, the care must be to avoid fatigue of the muscles, and the smallest current that will cause contractions may be used from five to fifteen minutes twice a day. He says he has had experience with these frequently-repeated applications in neuralgias, etc., and his statements are based upon this experience.

Among others, the following may be mentioned as recent publications on the therapeutics of the nervous system and mind :

BEARD, The Asylums of Europe. *Boston Med. and Surg. Journ.*, Dec 23. BRQUIET, Metallotherapy, and the Treatment of Disorders of Sensibility in Hysterical cases by Electricity. *Bull. gén de Therap.*, Nov. 30, 1880. WALSHAM, A Case of Epileptiform Neuralgia Cured by Stretching the Infra-orbital Nerve : with Remarks. *Brit. Med. Journ.*, Dec. 25th. KANE, Chloral Hydrate. *N. Y. Med. Rec.*, Dec. 25th, Jan. 1st, Jan. 8th, Jan. 15th. STEPHEN SMITH, Partial Intoxication in the Prevention of Shock during Operations. *N. Y. Med. Rec.*, Dec. 25th. CROTHERS, Clinical Studies of Inebriety. The Treatment of Inebriety Empirically. *Med. and Surg. Rep.*, Feb. 5th. KANE, Chloral Hydrate as an Antidote to Strychnia. *Ibid.*, Jan. 29th. POOLE, Electricity a Paralyzing Agent. *N. Y. Med. Rec.*, Jan. 29th. DAVIES, Chemical Restraint and Alcohol. *Jour. of Ment. Sci.*, Jan. 1881. POOLE, Strychnia a Paralyzing Agent. *N. Y. Med. Rec.*, Feb. 19th. ENGELHORN, On General Faradization. *Centralbl. f. Nervenheilk.*, Jan 1st. HUGHES-BENNETT, On the Action of the Bromides in Epilepsy. *Edinburgh Med. Jour.*, Feb.